

# CONSUMERS' RESEARCH

*Bulletin*



September 1948

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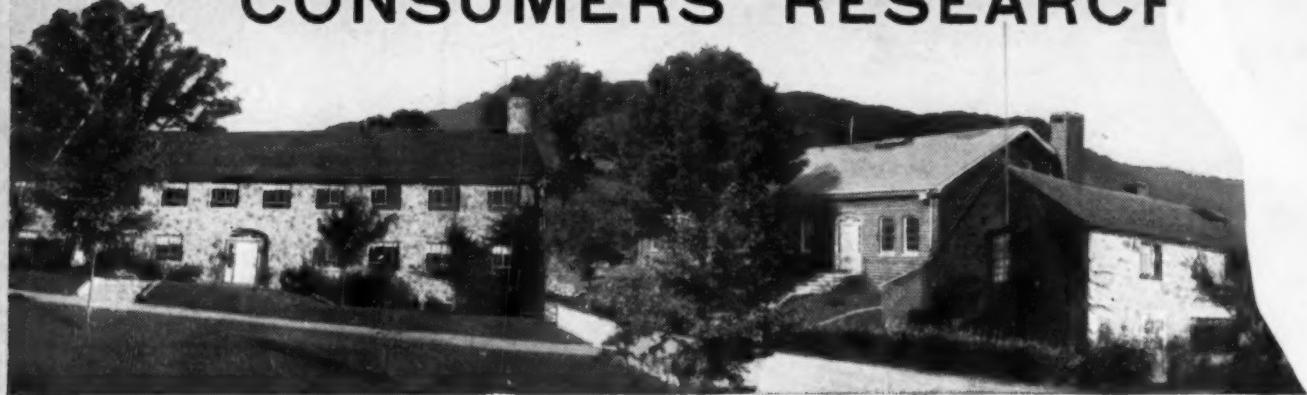
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# CONSUMERS' RESEARCH



Vol. 22 • No. 3

## BULLETIN

September 1948

### Off the Editor's Chest

THE wise and thrifty consumer is well advised to be conservative in his purchases of new and untried products. The advertising and publicity men are always coming up with something unique and wonderful. That's what they get paid for, but only people of great means—and there are not enough of them, of course, to make a mass market—can afford to believe such claims or act on them while the item is new and untested by consumer acceptance. Remember the ball point pen which was launched with a tremendous salvo of advertising in 1945 and 1946, at prices ranging from \$12.50 up? People all but trampled one another to buy these pens as fast as manufacturers could deliver them to the stores. The demand was so great and the profits so high that shipments were made to big distributors by airplane. The promoters claimed that these pens would write under water; at stratosphere altitudes without leaking; would write for 2 to 15 years without refilling; would write on paper or cloth; would never smudge or smear; and a super-enthusiastic advertiser for one of these

aimed his product was "the fantastic, atomic fountain pen."

Technical difficulties with the pen sometimes didn't, chief defect as the fugue. Simple exposure tests conducted indicated that the writing faded away in the light; in some cases the writing completely disappeared when exposed to light for moderate periods, and it

would have taken the expensive services of a handwriting expert, using photographic and other techniques, to determine what writing was on the paper. As the facts developed by CR became known, at least one state government and a number of corporations that cared about the permanence of their records issued rulings banning the use of ball point pens for signing official, legal, and other important documents.

In time, the ball point pen lost its novelty, and its price decreased with its popularity so that it is now possible to purchase a serviceable one in some variety chain stores for as little as 29 cents, with a key chain included.

If consumers who rushed madly to spend \$12.50 or \$15 for one of these "great, new developments in writing instruments" had at the worst merely wasted their money on a fad, perhaps no great harm would have been done, but only time will tell how many legal documents in the years to come will have been invalidated because the signature has faded and become undecipherable, and how many thousands of litigations will needlessly involve the expensive services of expert document examiners and handwriting experts to determine what was written and whether the signatures were genuine.

That the problem is a very real one is indicated by the fact that two Examiners of Questioned Documents of New York City, wrote an article for the American Bar Association Journal, May 1948, in which they brought to the attention of lawyers and

(Continued on page 23)

**Scientific and Technical Experts and Editors:** F. J. Schlink, R. Joyce, M. C. Phillips, Helen P. Alleman, A. R. Reenleaf, Charles L. Bernier, and Dwight C. Aten. **Editorial Assistants:** Mary F. Roberts and B. Beam.

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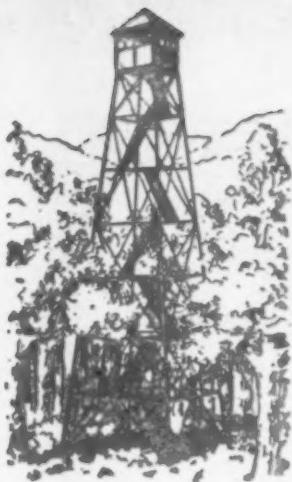
"R will, of course, gladly change addresses for men and women in the services as often as required by changes in station and other circumstances.

★★For a brief cumulative index of 1948 BULLETINS preceding this issue, see page 26.  
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# The Consumers' Observation Post

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INGREDIENTS, ALREADY MIXED, for making cakes, cookies, biscuits, muffins, and pies are becoming increasingly popular. Their sale is estimated by Tide magazine to have soared 230 percent from 1942 to 1947, and the products are now classed as a multimillion dollar business. Their chief advantage is convenience in a small kitchen and a small family. In a city kitchenette, there may be scarcely enough room for separate packages of the various ingredients needed for home baking, and besides the conventional recipe for a cake turns out a product larger than two persons can conveniently consume in a meal or two.

\* \* \*

SILK is back on the market, and silk dresses are again being advertised extensively. Consumers should be reminded, however, that weighted silk, which is also making its appearance, is a fabric of poor serviceability. The metallic weighting gives silks the appearance of being much better fabrics than they are, but, as CR pointed out in detail in days when silk was the predominant fiber for certain types of garments, the strength and life of weighted silks exposed to sunlight, perspiration, and dry cleaning are often very greatly reduced. Look for the label "pure dye silk" which, under Federal Trade Commission regulations, indicates weighting of no more than 10 percent in colored, 15 percent in black fabrics.

\* \* \*

CONTACT LENSES were the subject of a broadcast by the Radio Service of the University of California at Los Angeles which provided some interesting information of a preliminary nature for those who are considering the use of "invisible spectacles." It appears that certain eye defects in which the cornea is irregularly shaped can be more satisfactorily corrected with contact lenses than by lenses of the conventional sort. Contact lenses may not, however, be worn continuously because they interfere with the corneal metabolism of the eye, and, if worn long enough will cause cloudy vision. Fitting is often a major problem and may require 10 to 15 visits. The price is very high, ranging from \$175 to \$250 for a pair of lenses.

\* \* \*

MEAT with excess fat, bone, and other waste is always a source of irritation to the thrifty homemaker, and in time of high prices it can be exasperating to the point of explosion. Those who live in sections served by the Safeway stores will therefore be pleased at the new policy introduced by that chain of more closely trimming meat before it is weighed. Porterhouse or T-bone steak, for example, has the tail trimmed off before it is put on sale. Shoppers in other sections will do well to suggest that their butchers get in touch with this development and follow Safeway's excellent example. Grand Union stores have also announced a similar policy.

\* \* \*

RADIO SETS, particularly the small midget radios, are a potential danger to safety, points out Radio-Craft. Never should a radio be used in the bathroom. CR has warned repeatedly of the shock hazards of table-model and certain other sets. They are doubly dangerous near a sink, wash bowl, or bath tub, or in a damp place, indoors or out. Newspapers have reported several cases of electrocution which occurred when radio sets to which bathers were listening fell into the bath tubs; death can also occur by other accidents in which the set does not actually fall into the water.

\* \* \*

FINGER PAINTS are quite popular with children, and they are sometimes used in occupational therapy for adults. Recently the Journal of the American Medi-

cal Association reported an acute case of contact dermatitis from their use. The symptoms were somewhat similar to those of poison ivy dermatitis.

\* \* \*

PHONOGRAPH RECORDS are suffering from a severe slump in sales. Whether it is due to recent price hikes on records, competition of television sets and new cars for the consumer's dollar, or the Petrillo ban on new popular recordings, manufacturers are unable to determine. Consumer resistance, which made its effect felt almost overnight, has been responsible for the recent closing of two Decca plants and one Columbia factory. Whether Columbia's new Long Playing Microgroove record will be effective in counteracting the record slump is not yet clear. The new records are expensive, \$4.85 per 12-inch disk (though only about three-fifths as expensive on a time-of-play basis), and require special equipment for playing. The company's claims for the fidelity of musical reproduction afforded by the new long-playing Vinylite records cannot yet be fully confirmed, but the tonal quality is good, and CR will report more fully on this, as soon as necessary tests can be carried out.

\* \* \*

TROPICAL WORSTED SUITS for men have been so high in price during the past season that dealers have reported buying has been slow. On the other hand, wool-rayon blends, all-rayons, and cottons have done very well, reports Men's Wear. In part, the high prices of wool are caused, no doubt, by the government's subsidy to wool-growers, and if the present trend continues, the wool industry may well price itself right out of the men's summer suit market. Luckily for consumers, competition continues to function to some extent so that they can buy garments of other fibers at prices they can afford. Although cotton is plentiful, neither shirts nor sheets are expected to be less expensive, again because of the federal government's price support policy. As one journal put it, no matter how much cotton becomes available, the government will see to it that the price remains just about three times what it was in pre-war days.

\* \* \*

THE SELF-SERVICE GASOLINE STATIONS of California continue to be a topic of much interest. When we reported briefly on the experiment in the March Consumers' Observation Post, we received several letters asking for further information. The Wall Street Journal, July 2, 1948, has pointed out that in 10 months' time some 95 stations had joined the self-service movement. The saving on gasoline is around 5 cents a gallon, but there is some question whether the product is as good as brand name gas. Whatever the quality, it is evidently good enough to satisfy coast-state consumers, and the business is flourishing.

\* \* \*

POTATOES this year are in such abundant supply that U. S. Department of Agriculture officials are hard put to it to dispose of the surplus so that it won't depress the market (or in plain language, lower the prices that the consumer pays at the grocery store). Yet the Farm Journal reports that a U. S. expedition has been sent to Mexico and Central America to look for wild varieties that might be used to breed disease-resistant potatoes. The result of such research can only be to increase the surplus and thus the amount which the federal bureaucrats will have to spend to keep prices up to what they deem to be a sufficiently inflated level.

\* \* \*

THE NUTRITIONAL QUALITY OF EGGS AND MEAT was found to be far superior as measured both in growth-promoting power and anti-infective results to the protein found in casein which is derived from milk, or the proteins of soybeans, peanuts, or maize, according to animal experiments made by K. Guggenheim and E. Buechler of the Department of Bacteriology, Hebrew University, Jerusalem. The vegetable proteins were quite inferior in their effect in providing resistance to infection. If the findings of these animal experiments can be applied to human beings, as seems quite probable, the moral for the homemaker who tries to substitute beans and corn for high-priced meat, fish, and eggs is that her family's health will likely be better if she sticks to meat and eggs and economizes in some other field, perhaps transportation, amusements, or home furnishings.

(The continuation of the section is on page 29)

# 1948 Automobiles (Including Some 1949 Models)

NOW that all manufacturers have announced 1948 models and a few manufacturers their so-called "1949" models, it is possible to make an intelligent appraisal or estimate of the relative merits and demerits of the new cars.

Many of the 1948 models have changed but little in details or appearance from their 1941 and 1942 predecessors, and while this has had little effect on sales at the present time, due to the shortage of new cars, the used car value and turn-in value of the models that are not greatly changed in appearance and details will be adversely affected in future, when production more closely approaches demand and cars become obtainable without great delay.

Most of the real advances in automobile design are introduced either by the smaller companies or on a "make" or brand produced in relatively small numbers by one of the major companies; the reason of course is that no large producer of automobiles cares to take the risk of reduced production and sales volume by introducing a new design on a car produced on a really big scale for mass sales, if there is danger that the radically changed design may not turn out to be favorably accepted by the public.

The importation of several small British cars, such as the *Austin*, *Hillman*, and the British *Ford*, in these times of extreme car scarcity, may give some impetus to the plans of American manufacturers to produce smaller cars for which there does seem to be a definite need (if not active, assured consumer demand). A paper recently given before the Society of Automotive Engineers by Mr. Edward R. Grace indicates a substantial demand for smaller, more economical cars. This paper was based on a carefully conducted survey of car drivers, which showed that approximately 70% of the persons questioned would buy a smaller car in preference to the present models, because of their desire for a lower price, lower maintenance cost, and/or greater driving convenience. One engineer suggested the following specifications for such a car. The price should be about \$300 less than that of the present lower-priced cars (*Chevrolet*, *Ford*, *Plymouth*), wheelbase should be about 103 in., standard tread (56 in.), weight 2200 lb., 60 hp. 6-cylinder engine, seating for three in front, two in rear, and about 25% lower operating and maintenance cost than the present lower-priced cars. Such a car would fall somewhere between the *Crosley* and the "Big Three" in size and power. There is always a question about such surveys in that consumers may

indicate that they want a smaller car, but when it is offered to them, ready to buy and pay for, they may be unwilling to make the actual purchase, and will prefer something more conventional and of larger, more impressive size, finish, and equipment. There is probably no way of telling without actual offerings to the market whether there is really a large demand backed by willingness to buy, for a slightly smaller car priced well below the "Big Three." There is little doubt that there would be a substantial market, although perhaps not one large enough to attract one of the very large manufacturers such as Ford or General Motors.

In view of this, the present trend of body styling as exemplified by *Ford*, *Studebaker*, *Kaiser-Frazer*, etc., which results in much wider seats, would appear to be in the wrong direction. The average family of four or five people has very little need for a car with seats 60 or more inches wide and it will often be unwise to buy such a car because of the sales appeal of extra seating space—when the extra seating capacity will perhaps rarely or never be needed, in many cases. Furthermore, the elimination of fenders as such by making everything flush with the sides is likely to mean very much heavier repair bills, even in case of minor accidents and "scratches," and in some cases a considerable reduction in safety (to be discussed more fully later).

## Imported Cars

The British *Austin*, *Hillman*, and *Ford* Companies have established dealer sales organizations and are operating as separate units, but the prospective buyer of any British or other foreign built automobile should carefully consider two very important matters, at least, before making his purchase:

1. The cars are likely to have a very low turn-in value particularly if competition, which will eventually return as the supply tends again to equal demand, brings about the withdrawal of the imported cars from the American market.

2. No stock of repair parts or service station know-how exists in the United States except in the few authorized service stations that are now established or that may be established in a few major cities. Operating range therefore for fully reliable transportation at all times will in some degree be restricted to distances within reach of one of these service stations.

## The "Gray Market"

Practically all used-car dealers' lots in nearly every city and town are offering "new-used" 1948 and 1949 models of certain popular makes loaded with every type of accessory, at prices ranging from \$325 to over \$2000 above delivered prices as listed by the manufacturers. These cars, which are "used" in the sense that in many cases they have been driven around the block once or some other short distance and that the papers will not show the purchaser as the first owner, are a doubtful purchase for two reasons: (1) the purchaser receives no new car guarantee and as the worst of the cars, i.e., lemons, and cars which are below standard for some reason of poor manufacture or careless inspection, are readily disposed of to used-car dealers, the risk of obtaining an unsatisfactory car is greater than it would be in the case of a purchase through a dealer in the normal way; (2), the amount of money paid for a car over and above the specified "delivered price" listed by the manufacturer will represent just so much *irrecoverable money loss* to the prospective car buyer when, after some years, he decides to turn in the car for another new car or to sell it for cash. (Established car valuation codes used by dealers do not make any allowances for amounts paid by car purchasers in the "gray market.") Thus the buyer of a new or "new-used" car at an inflated price is a sure loser by at least the extra amount in any abnormally high extra price that he pays.

A trial control program, it is understood, has been under way in a large city, where it has had careful supervision, to put the used-car-market type of "gray market" under some sort of restraint, by special provisions and clauses inserted in the bills of sale which permit the dealer initially selling the car to hold a prior right to its purchase in case the first owner should offer it for sale within six months. Reports received by CR, however, indicate that only in a few cases have such clauses been "made to stick." Their legality may indeed be questioned.

## Safety

As in previous periods of automotive progress, improvements making toward greater safety and comfort in automobiles have been made, but these have been accompanied by design changes which in some instances have created new elements of serious potential danger to car users. Chief among these is the new wide body design. This new body form now being adopted by many automobile manufacturers has eliminated the conventional running boards which in conjunction with the outriggers connecting them to the frame acted as a cushion in some cases to absorb crash energy in side-on or diagonal collision accidents and reduced the damage done by the impact, in proportion as energy was dissipated in crumpling, and otherwise de-

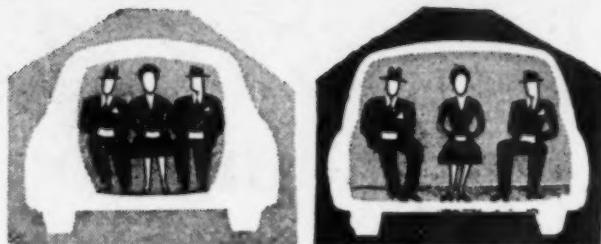


Figure 1—Old Style    Figure 2—New Style

The above illustrations taken from a Kaiser-Frazer newspaper advertisement, though crude and perhaps misleading in their reflection of body shape and construction and seating space available on the rear seat, show the lack of side crash protection in the new-as compared to the old-style bodies, and clearly indicate the need for side bumpers or equivalent stiffening means to strengthen the frame to provide passenger safety equivalent to that afforded by the better 1947 cars.

forming the running board and its supporting structure.

Hudson has a box frame which extends outside of the rear wheels, which should absorb a considerable portion of the impact of a sidelong collision; the new Ford has retained a small running board which is carried on a structurally strong support, and has ribs widening the body posts, but in most of the new wide bodies little or nothing has been added to take the place of the protection hitherto afforded by the running boards and their supporting structure, and by the mounting of the body on outriggers that were carried by the frame. The industry indeed has seemed totally unaware of its great responsibility in rendering automobiles more susceptible to major damage and the passengers subject to grave injury from what would otherwise be a minor accident caused by the side of the car being crushed in. The driver and passengers sitting at the sides of the wide body cars are protected only by the door body posts, and relatively weak door structures (see Figure 1 and Figure 2). As already noted, in Hudson and Ford cars, the danger may not be quite as great as with some other cars, but

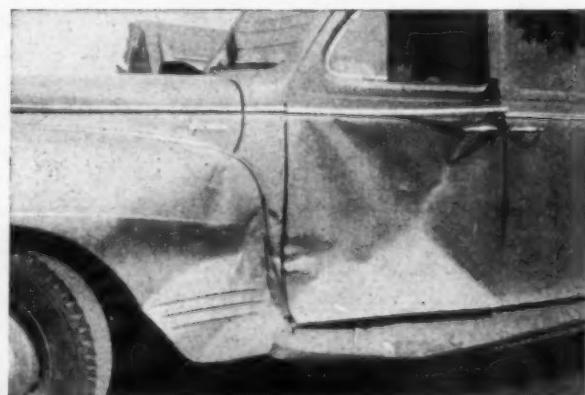


Figure 3

*Had it not been for the running board which bore the brunt of the impact, the body of this car would have been much more seriously damaged.*



Figure 4

it nevertheless is greater than with the pre-war style cars, because the passengers have been moved outward and closer to the point of impact. This danger is far from a theoretical one as evidenced by the actual crash photographs as shown in Figures 4, 5, and 6. If wide bodies become the preferred style, then it appears that immediate attention should be given to designing and installing suitable side bumpers or an equivalent, to reduce the danger of serious injury to passengers, and of course to reduce the very costly damage to the car itself that may run to \$500 or more, which will occur when a car of the new design is struck amidships by another car or truck or by impact against a tree, pole, wall, or jutting stone.

Some years ago manufacturers were busy extolling the virtues of the all-steel turret top as a real advance in safety; however, the trend to wider bodies and improved vision in some cars, notably the *Studebaker*, has greatly weakened the upper body and car roof supporting structure; thus the roof may no longer provide an important degree of protection to the passengers inside the car in an accident in which the car rolls over (which is a fairly common occurrence nowadays, on account of the high driving speeds that prevail as compared with a decade ago). The roof crumples and posts



Figure 5

break off. A car having a weakly supported roof must be rated as offering only a little more safety value to occupants than an open convertible. Even where the passengers survive, a weak roof structure may result in the body's being so badly deformed as to be impractical to repair, so that the car is rendered practically worthless. (New bodies as a replacement part are not available at this time.)

On the credit side of the account, it must be noted that increased visibility of the road and of approaching vehicles through wider and higher car windows and windshield may help to avoid many



Figure 6

accidents and collisions. However, there is no justification for manufacturers to offset this improvement by decreasing the strength vitally needed in case a crash does occur, as it will at times with any make of car and with any degree of care and skill on the part of the driver.

As has been noted, the "unitized" construction now used by several manufacturers which combines the body and frame into one unit, may contribute to increased safety of passengers when a crash occurs. This design also assures reduction of the pronounced tendency toward body rattles that were present in many cars of the older type of construction, but it is likely to increase cost of repairs following a major accident. Some of the cars (notably *Pontiac*) have insufficient headroom in the rear for seating of tall persons; in fact the head of a tall man without a hat may actually touch the roof directly under a steel cross-member, which could be dangerous in going over a bad bump. It will often be wise to check the headroom of a car before finally deciding on a purchase.

### Road Clearance

The term "road clearance" as used by car dealers is generally taken to mean the clearance at or near the center zone of the car (the region at which contact is most likely to be made with a projecting object or hump in a dirt or gravel road). The road



Figure 7—A



Figure 8—B

Illustration at A shows how lack of proper road clearance can result in loss of traction and a critical situation for the driver; B shows a front axle which has exceptionally small clearance over much of its length.

clearance is thus not always measured at the part of the car which projects downward to the farthest extent when the car is standing on a level surface.

Sufficient clearance is a matter of considerable importance to all rural dwellers and those who travel occasionally on rural roads. The high crowns and deep ruts often found in bad roads may often cause a car to become stalled and helpless (due to car weight resting on the engine pan, differential housing, or other part instead of on the wheels). This is especially likely to occur where there is mud or water and it is not possible for the driver to judge with any certainty how deep his wheels will sink into the ruts.

The manufacturers, in their endeavors to lower the center of gravity, to improve riding qualities, and to use smaller wheels and larger engines, appear to have lost sight of the fact that from the consumer's point of view these changes, however attractive from a sales point of view, are not real improvements when safe, dependable transportation is sacrificed to obtain them. Car manufacturers should realize that adequate road clearance is

essential for many if not most drivers. Not all America lives on well-paved streets, as car manufacturers seem to suppose, and many car owners have no wish to do so.

### Riding Qualities

Vibration and hard riding qualities are responsible for much of the fatigue experienced in long trips by automobile. To absorb or damp the vibrations below the level where they cause irritation has long been the aim of automobile manufacturers, and some measure of success has been achieved by the use of two-way shock absorbers, rubber engine mountings, fluid drives, improved weight distribution, and full depth foamed rubber seat cushions.

These new cushions, now becoming popular, have proved to be exceptionally useful in damping irritating types of vibration. The rubber cushions are a big improvement over the old spring cushion seats and are, in CR's opinion, well worth their additional cost. Pads of foamed rubber  $\frac{1}{2}$  to  $1\frac{1}{2}$  in. thick used in the seat construction are also helpful, but it is said that seats using foamed rubber will tend to be "hot" unless there is a layer of cotton batting or some equivalent padding for ventilation. A new production line recently installed by Goodyear at a cost of more than \$5,000,000 for Airfoam cushions indicates that car manufacturers are expected to make wide use of such cushions in the future. One engineer considers that middle-aged and elderly people and those in ill health who formerly could not ride more than 100 miles in a single day without fatigue, can, with foamed rubber seat cushions and other ride-comfort improvements, travel 300 to 400 miles without discomfort.

### Spare Tire Location

Some manufacturers have been either careless or unthinking in making their decisions regarding the locations of the spare tires. Even with today's numerous concessions to passengers' convenience and comfort, the manufacturers of many cars have



Better location for tire and wheel, but still so far forward that a considerable part of the luggage must be removed before the tire can be reached and tilted in taking it out.



A common position of tire and wheel toward the forward end of the luggage space, which may require that almost the entire contents of the trunk be removed to permit getting at the tire.

made the tire location such that most or all of the luggage must be removed to get to the spare. This can be exceedingly inconvenient or troublesome to the motorist, particularly in inclement weather when suitcases or other valuable articles must be removed and exposed to the elements with possibility of damage when a tire change is being carried out. A common arrangement in the trunk of pre-war cars was the provision of a shelf or "upper floor," for luggage, the spare tire and tools being placed in a compartment underneath. In some versions of this layout the tire could easily be removed without disturbing the other contents of the luggage space.

### E.L.P.—Extra Low Pressure—Tires

The new 15-in. low pressure tire and wheel size which is now tending to become standard on 1948 automobiles will definitely give improved riding comfort through their increased cushioning effect and slightly decreased road noise when driving straight ahead. The tires will also have somewhat longer life—about 15%—and give slightly better fuel economy (resulting from decreased rolling resistance), *provided correct inflation pressures* are maintained and tires are not overloaded. (The new tires are more sensitive to a few pounds error in the inflation pressure, and to overloading than the tires of past years.) The new tires, with their larger air-volume, have, however, some minor disadvantages, such as increased effort required in steering and parking (18 to 32%), greater squeal in turning corners, about 45°F higher brake temperatures due to blanketing effect of the bigger tire. The higher brake temperature is not judged sufficient to affect braking performance, but may somewhat decrease total life of brake linings.

*Maintenance of correct pressure* is very important with these new tires as they will be much more sensitive to underinflation than the older tires operating at higher pressures. Frequent and careful checking of pressures will be essential. Car owners should carry an accurate tire gauge with

them as service station gauges are frequently quite inaccurate and if depended on may cause considerable harm to tires. E.L.P. tires should never be inflated above the manufacturer's recommended pressure (usually 24 lb.) or be run at a lower pressure than about 22½ lb./sq. in. Some sidewall cracking has been reported from underinflation; part of this trouble may, however, be chargeable to overloading, as most of the tires on the 1948 cars are carrying a load heavier than that set as correct by the Tire and Rim Assoc. (see table).

In specifying their recommended inflation pressures, manufacturers frequently fail to indicate the temperature at which the pressure is to be measured. As there may be a difference of as much as 6 pounds per square inch due to changes in the temperature of the tire, it is plain that the manufacturers should specify the conditions under which the stated pressure is to apply, and specify a tolerance that they consider reasonable, on the stated pressure. The figures might (without reference to a tolerance of error that has been suggested), for example, be given as: 24 when cold, 26 warm, 28 hot.

### Installing E.L.P. Tires on Existing Cars

While the new E.L.P. tires may be installed on many existing cars having 15-in. and 16-in. rims, certain allowances and precautions are necessary, and the car owner must be prepared to accept some disadvantages along with the increased riding comfort and other advantages obtained. The necessary precautions apply even though the existing car is already equipped with rims of wider base size than cars produced a few years ago.

If the new tires are installed on a car with rims of the type formerly standard for conventional tires, the "cornering power" will be less than for the old tires. (Cornering power is the ability of the tire to hold the car on its intended course against the centrifugal forces on turns, sidewise forces of wind, sloping pavements, etc.) If the car has the so-called "wider rims" of 1946 and 1947 models, the cornering power will be improved, but it will not be as good as when the rim width recommended for the E.L.P. tire is used. There will also be an increase in what automotive engineers term "wheel fight,"<sup>1</sup> as well as an increase in steering wheel turning-effort. (The latter may be partly overcome by a decrease in the caster angle. Note: This correction should probably be used sparingly to avoid decrease in steering control at high road speeds.) However, there will be an increase in the self-righting effect of the wheels after turning a corner (unless caster is reduced to decrease the turning effort).

<sup>1</sup>"Wheel fight," a term used to describe the necessity for frequent or continuous minor movements of the steering wheel while driving to keep the car going on a desired straight course.

(Discussion continued on page 14)

		F.O.B. Price <sup>1</sup> \$	N.Y.C. Delivered Price, \$	Gray Market Price \$	Wheelbase, Inches	Over-all Length, Inches	Price per lb. in cents	N. Y. C. Gray Market	Horsepower at Rated Revolutions per Minute	Curb Weight, lb.	Compre- sion Ratio	Standard	Optional	Brake Area, sq. in.	Brake Factor
Price Group 3	Buick 40 Special	1673	1748	2775	121	207½	45	72	110 @ 3600	3865	6.3	—	162	35	
	Oldsmobile 78	1717	1779	2750	125	213	46	72	110 @ 3600	3835	6.5	—	181	39	
	Willys 4 Jeep Station Wagon	1739	1825	—	104	174	62	—	60 @ 4000	2925	6.5	7.0	133	36	
	De Soto De Luxe	1551	1840	2540	121½	207¾	51	70	109 @ 3600	3605	6.6	—	174	40	
	Nash Ambassador	1779	1851	2175	121	208½	52	61	112 @ 3400	3590	7.1	7.5	176	41	
	Studebaker Commander De Luxe	1851	1920	2400	119	204¾	57	71	94 @ 3600	3365	6.5	7.0	178	43	
	Chrysler Royal	1661	1960	2625	121½	210¾	53	71	114 @ 3600	3680	6.6	—	174	39	
Price Group 4	Buick 50	1929	2006	3050	124	212¾	50	76	115 @ 3600	4015	6.7	—	162	34	
	Studebaker Commander Regal De Luxe	1972	2041	2525	119	204¾	60	75	94 @ 3600	3385	6.5	7.0	178	43	
	Willys 6 Station Wagon	1992	2075	—	104	174	71	—	72 @ 4000	2930	6.5	—	133	36	
	Hudson 6 Super	2003	2140	2450	124	207½	58	67	121 @ 4000	3680	6.5	7.1	158	36	
	*Mercury	1875	2146	2925	118	206¾	60	81	110 @ 3600	3600	6.8	—	179	41	
	Chrysler Saratoga	1973	2200	2850	127½	216¾	53	68	135 @ 3400	4165	6.7	—	189	38	
	Hudson 8 Super	2092	2245	2575	124	207½	61	70	128 @ 4200	3705	6.5	7.0	158	36	
Price Group 5	Kaiser 6	2184	2278	—	123½	203	62	—	100 @ 3600	3645	7.3	—	176	40	
	Hudson 6 Commodore	2161	2316	2625	124	207½	62	71	121 @ 4000	3720	6.5	7.1	158	35	
	Buick 70	2232	2317	3350	129	217	53	77	144 @ 3600	4330	6.6	7.0	208	41	
	Packard 8	2275	2354	2500	120	204½	59	63	130 @ 3600	3975	7.0	—	172	36	
	Hudson 8 Commodore	2250	2408	2725	124	207½	64	72	128 @ 4200	3780	6.5	7.0	158	35	
	Frazer 6	2374	2478	—	123½	203	67	—	100 @ 3600	3690	7.3	—	176	40	
	Cadillac 61	2647	2724	4775	126	214	59	103	150 @ 3400	4620	7.25	—	208	39	
	Packard Super 8	2827	2906	3050	120	204½	72	76	145 @ 3600	4035	7.0	—	172	36	
	Cadillac 75	4471	4560	6625	136	226	87	127	150 @ 3400	5215	7.25	—	233	39	

\*1949 Models.

<sup>1</sup>F.O.B. prices as given by Chrysler Corp. for Plymouth, Dodge, De Soto and Chrysler do not include delivery, handling, or federal taxes.

Tire Size	Tire Data		Seat Widths, Inches		Road Clearance, In.	Accessibility of Spare Tire	Engine Revolutions per Mile <sup>2</sup>		Piston Disp. in Thousands cu. in./mi. $\div 2$		Performance Factor	Rating	REMARKS
	Calculated Load per Tire, lb.	% Overload	Front	Rear			Standard	In Over-drive	Standard	In Over-drive			
6.50 x 16	1154	9.9	56	51	7.5	Good	3090	—	380	—	24.0	A-	
6.50 x 16	1146	9.1	56.5	50	7.2	Fair	2990	2520	380	320	24.0	A	With Hydramatic, B+.
6.00 x 15	956	9.9	54	53	8.2	Good	3510	2710	240	180	16.5	A-	
7.60 x 15	1088	None	52	51	8.0	Good	2600	—	310	—	25.0	A	
7.10 x 15	1084	9.5	57.5	50	8.0	Poor	2830	—	330	—	26.0	B+	
6.50 x 15	1029	2.3	59	58	8.0	Poor	2940	—	330	—	22.5	B	
7.60 x 15	1108	1.6	52	51	8.0	Good	2600	—	330	—	25.5	A	
7.60 x 15	1191	9.3	58	52	7.5	Good	2970	—	370	—	24.0	A-	
6.50 x 15	1034	2.9	59	58	8.0	Poor	2940	—	330	—	22.5	B	
6.00 x 16	958	4.7	54	53	8.2	Good	3520	—	260	—	19.5	B+	Engine is new, and hence untried.
7.10 x 15	1108	12	63	64	8.2	Fair	2830	—	370	—	27.5	B-	With 7.60 x 15 tires, only slightly overloaded.
7.10 x 15	1088	9.9	57	60.5	7.7	—	2700	2280	340	290	25.5	B	
8.20 x 15	1229	None	52	51	8.0	Good	2510	—	420	—	27.5	A-	
7.10 x 15	1114	12	63	64	8.2	Fair	2830	—	360	—	28.5	B	With 7.60 x 15 tires, only slightly overloaded.
7.10 x 15	1099	11	62	62.5	8.7	Fair	2830	—	320	—	23.0	B-	
7.10 x 15	1118	13	63	64	8.2	Fair	2830	—	370	—	28.5	B-	With 7.60 x 15 tires, only slightly overloaded.
8.20 x 15	1270	9	58	52	7.5	Good	2630	—	420	—	28.5	A	With Dynaflow, B+.
6.50 x 16	1182	12.6	56	50.5	8.0	Poor	2710	—	390	—	27.5	B+	
7.10 x 15	1132	14.4	63	64	8.2	Fair	2830	—	360	—	28.5	B-	With 7.60 x 15 tires, only slightly overloaded.
7.10 x 15	1111	12.2	62	62.5	8.7	Fair	2580	—	290	—	22.5	B-	
8.20 x 15	1342	9.5	60	52	7.5	Fair	2420	—	420	—	28.0	A	Luggage space small for large car.
7.00 x 15	1197	9.3	56	50.5	8.0	Poor	2710	—	440	—	30.5	A	
7.50 x 16 6-ply	1492	None	60	51	7.5	Good	2770	2450	480	420	25.0	A-	

Nominal tire size, no load and tires inflated to correct pressures.

**L**ITERALLY thousands of American elm shade trees have died from disease in the past 18 years. The Dutch elm disease, introduced from Europe and found at Cleveland, Ohio, in 1930 and in New Jersey in 1933, has continued to spread over an area from Maryland to most New England states, and westward to Indianapolis, Indiana, and just recently has been found in Denver, Colorado. Another elm disease, phloem necrosis, is confined so far to the midwest. In Connecticut alone over 12,000 trees were known to have contracted Dutch elm disease and died prior to 1946. Columbus, Ohio, has lost from phloem necrosis 65,000 elms growing on streets and other city property, in addition to unknown numbers on private property.

In the 1930's, governmental agencies spent over ten million dollars, for the most part WPA funds, on an eradication program attempting to find and destroy all trees affected with Dutch elm disease. The project failed to eradicate the disease, and all hope of complete eradication was given up several years ago. Emphasis is now on research to learn how to live with the disease and save as many elms as possible; it appears that if given reasonably good care, some elms

can survive. There are still many fine elms in the area around New York City, where the disease has been severe since 1933. Phloem necrosis is much more deadly than Dutch elm disease, and in some midwestern cities, such as Columbus, it is making almost a clean sweep. Some few trees, however, seem to be resistant, and from them Department of Agriculture plant pathologists are developing strains of American elm that are resistant to the virus. If successful, this will provide elms for future generations, but it does not help present property owners whose trees are dying.

The U. S. Department of Agriculture has a Dutch Elm Disease Identification Laboratory at East Orange, New Jersey, and an Elm Disease Research Station at Columbus, Ohio. The Connecticut, New Jersey, and New York State Agricultural Experiment Stations and Departments of Agriculture are engaged actively in research on Dutch elm disease control.

The accompanying summary of present information on these two elm diseases was prepared by Dr. Paul E. Tilford, Executive Secretary of the National Arborist Association, Wooster, Ohio.

ested elms or elm parts. It is important to destroy damaged and weak elms and fallen or cut elm trees before bark beetles complete their development and emerge. Elm trees should not be cut and their wood left outdoors between April 15 and October 15 in regions where the Dutch elm disease occurs. Any elm wood cut during the winter should be sprayed or debarked by April 15, or so treated immediately if cut during the summer. A spray for this purpose can be prepared by dissolving 8 pounds of technical DDT in 100 gallons of No. 2 fuel oil; this should be applied so as to wet the entire bark surface. (This may of course involve an increased fire hazard.) *Fuel oil solutions of DDT should not be used on living plants.*

According to one expert, Dr. William H. Rankin, the New York State elm disease control expert, where elm trees have been quickly removed, the spread of the disease has been diminished to two or three trees a year, whereas in other communities where sanitation has not been used, thousands of trees have died, and in some cases, every elm in a village has been lost.

2. Bark beetles are attracted more often to weak elms than to vigorous trees. Pruning to remove weak and dead branches, fertilizing to encourage growth, and spraying with insecticides to control scale and leaf-eating insects

which reduce tree vitality are recognized as necessary practices in a Dutch elm disease control program.

3. Experimental results have shown that DDT emulsions applied with hydraulic high-pressure sprayers at the rate of 15 gallons to an elm tree 15 inches in diameter and 50 feet high will prevent twig crotch feeding by the elm bark beetles that spread Dutch elm disease, and also will control cankerworms, elm leaf beetles, and other insects that defoliate elms. DDT concentrates applied with "mist blower" sprayers, which use air streams in place of water as the carriers of the insecticides, are now being used in some localities with apparently satisfactory results.

Another promising method of control is being investigated by plant pathologists at the Connecticut Agricultural Experiment Station. Some chemicals, particularly oxyquinoline benzoate, delay the progress of Dutch elm disease when applied in solution to the soil around the feeder roots of trees showing the first symptoms of the disease. The treatment is not a cure, but enables the affected tree to live longer than it would without treatment. Such treatments are in the research stage at this time, and their practical value under field conditions is not established.

Elm phloem necrosis, a virus disease, ap-

pears even more baffling than Dutch elm disease. At this time there is no known cure for phloem necrosis, nor any sure way of treating a healthy tree to prevent infection. At a meeting of arborists in Columbus, Ohio, Dr. R. R. Whitten of the Bureau of Entomology and Plant Quarantine of the U. S. Department of Agriculture, announced that under experimental conditions the disease has been transmitted from diseased to healthy elms, for the first time this past year, by a small leafhopper. This leafhopper is a sucking insect found on elms, and has been identified by entomologists as *Scaphoideus luteolus*.

Department of Agriculture entomologists are now carrying on research in an attempt to develop control measures for this leafhopper and similar insects which may be carriers of phloem necrosis. This work has not progressed far enough that recommendations for control of the disease can be made, but DDT and some other new insecticides hold some promise.

Owners of elm trees in the areas where phloem necrosis occurs should beware of self-

styled tree experts who claim they have a sure control for the disease. Numerous cases have been noted of unqualified and uninformed fakers collecting fees for absolutely worthless treatments.

The tree owner should select for work on trees only a reputable tree expert or arborist. Only six states have laws licensing arborists; two other states control the situation to some extent by law, but in the remaining states anyone can represent himself as a tree expert. Usually local park departments, Better Business Bureaus, and Chambers of Commerce can give information on whether a particular concern or individual has a reputation for satisfactory service, and before contracting for any work, the property owner should investigate any tree expert whose qualifications are not known to him, or he risks being himself "trimmed" and having his trees badly damaged. *It is wise particularly to avoid the services of itinerant operators unknown in the community or region.*

## A Hazardous Refrigerant

METHYL CHLORIDE, which is a dangerous refrigerant that has caused some deaths, has been found to involve a serious hazard, recently reported in a trade journal but also well known and publicized as far back as 1937 in a house organ of the Ansul Chemical Co. (*Ansul News Notes*, Vol. 1, No. 2). The 1937 article asserted positively that aluminum should not be used in any part of a refrigerating machine where it could come into contact with methyl chloride. Under certain conditions, with aluminum present in some part of the refrigerator system, the reaction with methyl chloride may result in a burst of flame when there is access to air. It is very important, therefore, that there should be no aluminum parts in a system which is changed over from *Freon* to methyl chloride. Walter O. Walker, director of research for the Ansul Chemical Company, has commented that if aluminum is present in the system, "The best thing to do would be to throw the whole machine in the ocean, the customer being willing, and forget about it." Refrigeration service agencies cannot be counted upon to be familiar with technical matters of this kind, so that it would be

important for the consumer to be aware of the possible hazard in the use of methyl chloride units, and the fact that, besides, methyl chloride is both an insidious and a dangerous poison. It is questionable whether it should ever be used in refrigeration. An important consideration is that it is so nearly odorless that it is almost undetectable and hence its presence may not be noted even when the air contains it in highly toxic concentrations. Twenty-nine cases of intoxication by this refrigerant were reported in Chicago in a short period in connection with apartment house refrigeration units, and other cases of serious poisoning have been reported subsequently (not, however, connected with household refrigerants). Ten of the patients in the Chicago cases died.

Considering the double hazard involved in the use of methyl chloride, it does seem as though the gas should be definitely ruled out for use in refrigeration equipment and appliances of all kinds. The subtle nature of the hazard is evident from the comment which one authority made: "Delayed symptoms and delayed deaths are typical of methyl chloride poisoning."

# Soapless Cleaners and Detergents—II

## Phosphates

Several inorganic salts have been used in these cleaners; they fall mostly into two classes, phosphates and carbonates. All of the salts present are commonly in the form of sodium salts. The phosphates listed in the table under abbreviated names are "tsp." or trisodium phosphate, "pyro" or sodium pyrophosphate, and "hexameta" or sodium hexametaphosphate.

Trisodium phosphate is a strongly alkaline salt, in some concentrations reaching a pH of 12, which is an extremely caustic solution. Small amounts of tsp. are often used to build soap because of the ability of this compound to neutralize acid soil, to suppress chemical change of soap in water, and because of its marked water-softening power. With soap, however, it is not used at a concentration that would give a pH of 12. Often used alone as a water softener, tsp. precipitates salts which cause hardness. Because of its alkalinity, care should be taken to avoid any great excess of this salt in solution. The amount of unreacted (excess) tsp. present should be no more than a small fraction of 1%.

A strongly alkaline solution removes the protective film of oil which normally coats the skin—thus making the skin dry and rough, and when sufficiently chapped to be cracked, subject to infection by bacterial invasion. As high alkalinity is definitely harmful in washing wool, trisodium phosphate is not a proper agent in a product for this use, unless other ingredients are present which reduce the alkalinity of the solution. (Some of the salts present in the soapless cleaners as sold

THE first part of this article appeared in the March 1948 BULLETIN, pages 25-27. This second article discusses the inorganic salts and other ingredients often found in such preparations. A table is included giving the types and approximate percentages of the important ingredients in 28 liquid and 40 powdered or granular detergent products manufactured and sold for household use; degree of alkalinity is also shown, as pH of a 1% solution.

to consumers would have this effect.) Addition of a suitable proportion of trisodium phosphate to a synthetic detergent will increase its efficiency. Many inorganic salts, both alkaline salts and neutral salts like sodium sulfate and sodium chloride, act as builders or promoters for synthetic detergents.

Sodium hexametaphosphate (*Calgon*), sold as a mixture with sodium metasilicate under the trade name of *Calgonite*, is primarily a water softener. It is neutral in solution and is therefore non-corrosive to skin and fabrics, and its action avoids the precipitating action of trisodium phosphate in hard water. Besides its action as a water softener, it serves as a builder with synthetic detergents, promoting their cleansing effect. This is the most expensive of the water-softening salts.

Tetrasodium pyrophosphate is also a good water softener; it forms a fine precipitate by reaction with calcium salts above about

7-grain hardness and with magnesium at a little higher level. It is a more efficient softening agent than trisodium phosphate and more expensive, although less expensive than hexametaphosphate.

## Carbonates

Under the classification of carbonates in the table are found "carbonate," "bicarbonate," and "sesquicarbonate." These, like the phosphates, are commonly used in cleaners in the form of sodium salts.

Sodium carbonate or soda ash is another alkaline salt effective as a water softener, particularly for removal of calcium. The same compound chemically combined with more than its own weight of water is called washing soda. It is a very inexpensive softener, cheaper than trisodium phosphate, but gives a somewhat coarser precipitate in hard water. Its solution is markedly alkaline (pH 10.7 in a 0.1% concentration), but not as alkaline as trisodium phosphate. It is too alkaline for washing woolen garments and is harmful to the skin if in contact with the hands for more than a brief period of time. Its proper function is as water softener and builder.

Sodium bicarbonate, slightly alkaline, has no value as a water softener since it fails to remove calcium and magnesium, but it does have a buffering action. (Buffering action may be defined as a tendency of a solution to maintain a more or less constant acidity or alkalinity in spite of the addition of either an acid or an alkali.)

Although sold as a definite compound sodium sesquicarbonate is actually an approximately 1:1

combination of sodium carbonate and sodium bicarbonate. It costs in general a little more than sodium carbonate, has a lower alkalinity, which is often desired, is a less efficient water softener, but has some building effect with a synthetic detergent and some degree of buffering action. The sesquicarbonate usually sells at a higher price than is warranted by its value as a water softener in comparison with the cost of sodium carbonate.

### Other Ingredients

Some granular and liquid products contain ingredients other than the commonly used phosphates and carbonates.

Borax or sodium tetraborate is one of these; it is an inexpensive salt whose solution is mildly alkaline (about pH 9.4 at 0.1% concentration). Borax has a limited value as a water softener, since it precipitates magnesium but not calcium; and magnesium is always present in hard water in smaller amounts than calcium. Like sodium bicarbonate, borax will have a buffering action and will reduce the alkalinity of a stronger alkali if present in a high enough proportion.

Silicates, shown by analysis to be present in a few products, are a general class of alkaline salts which vary in composition and in the alkalinity of their solutions from the moderately alkaline pH of 10.2—the same as that of soap solution—to a strongly alkaline pH of over 12. They are not good water softeners, although they do possess some water-softening action. They act as builders with synthetic detergents and should enhance their cleaning action since they appear to have some slight detergent effect of their own. On the whole they are probably less effective in these products than the true water softeners. The price of metasilicate is about in a class with that of trisodium phosphate and higher than soda ash.

Sodium chloride or table salt is neutral, and in suitable propor-

tions will serve as a builder for synthetic detergents. Ammonium chloride, present in one product, *Soilax Formula B*, is another neutral salt having some building value, but no other specific detergent effect.

*Carbona Soapless Lather*, a liquid cleaner, contains a small proportion of *Hexalin*, a fat solvent which should help remove oil. Two liquid products, *Soil-Off* and *Tom Kon's Concentrate*, each contain 1% ammonia, probably present to give a slight ammonia odor, but certainly of no practical value in this proportion. Colof, and substances added to provide an odor, present in many of these products, particularly the liquids, are not included in the analytical data because they have no significance in terms of cleansing properties.

Incorporation of a ratio of 1:1 or more of sodium carbonate, sodium sulfate, or trisodium phosphate, may decrease the dispersing efficiency of the detergent, but sodium pyrophosphate and hexametaphosphate may be used in this, or even in higher proportions, without detracting from the dispersing power of the detergent. (The ability to disperse or suspend solid particles throughout the wash liquid is believed to be closely correlated to total washing ability.)

### pH of Solutions of Granular Products

Soap solution (pH of 10.2 at 0.1% concentration) is usually considered only moderately alkaline. For general cleaning operations the alkalinity of the solution should not go much above this, say pH 10.3-10.4. Even this is not desirable for washing woolens, since wool is deteriorated so readily by alkali; preferably the pH should not be over 9.5 for the best result with wool. Some manufacturers have taken this into consideration in their formulations, as may be observed by the pH of 9.3 for *WoolFoam*. Silk, too, is much more sensitive to attack by alkali than cotton.

A solution of pH 10.7 is alkaline enough to corrode aluminum visibly if left in contact with it for more than a few minutes. It will also be rather drastic for immersion of the hands as in dishwashing and hand laundering. The skin would lose its protective oil film on prolonged contact with such a solution. The values for pH in the table would be reduced somewhat under practical conditions of use, both because of reaction with hard water ingredients and use of a lower concentration than 1%. The conditions under which the products are used, therefore, enter into the picture.

Those cleaners having a pH of 10.5 or more should certainly be used only in very dilute solution, unless a precipitate forms indicating reaction. An effort should be made to add only a small excess after such precipitate ceases to form.

### pH of Liquid Products

Most of the relatively few liquids having the high pH of 10.5 and over need not cause concern, since these will be diluted greatly in use. The three having a pH above 11.5, however, should be handled with care. If spilled on the hands they would be distinctly irritant, and would be harmful to most fabric materials unless greatly diluted.

### Comparison of Individual Products

It will be seen from the table that the granular products vary widely in composition. The 15 products listed as containing no synthetic detergent should not be classed as general cleaners. They are mixtures of alkaline water-softening agents and are suitable for softening laundry water and dish water before soap is added. Those containing substantial amounts of hexametaphosphate and pyrophosphate are the most desirable water softeners, although the price will run higher than for a corresponding amount of tsp. and carbonate. Those which are strongly alkaline, as indicated by

Granular Products	Type and Percentage of Synthetic Detergent approx. <sup>1</sup>	Type and Percentage of Phosphates approx.	Type and Percentage of Carbonates approx.	Other Salts in %	pH of 1% solution	Packaging	Manufacturer
<i>Brilex</i> <i>Burgie</i> <i>Calgolac</i>	Tsp. 43.5 Tsp. 47	Hexameta 26	Sesqui 53 Carbonate 14 Sesqui 50	Borax 56.5 Silicate 10	10.0 10.6 9.8	1½ lb. carton carton 1¼ lb. carton	Britex Co., Boston Bauer Mfg. Co., Wooster, Ohio Cragon Inc., Pittsburgh
<i>Club General Cleaner</i>	Sulfonated 19	Pyro 20 Tsp. 61	Pyro 20 Tsp. 61	Table salt 15	11.5	1 lb. carton	Club Aluminum Prod. Co., Chicago
<i>Clue's Cleaner</i>	Sulfated 5 Sulfated 36 Sulfated 23	Sesqui 14 Carbonate 95	Bicarbonate 9 Carbonate 14 Carbonate 95	Sodium sulfate 64 Sodium sulfate 77 Table salt 23	10.3 Neutral Neutral	1 lb. carton Small carton 4 oz. carton 8 oz. carton 1¼ lb. carton	Blue Products Co., Rochester, Ind.
<i>Coldfoam</i> <i>Dirt Buster</i> <i>Dref</i> <i>Dri-Kleen</i> <i>du Pont Paint Cleaner</i>	Sulfonated 5 Sulfonated 5 Sulfonated 5 Sulfonated 9	Tsp. 58 Tsp. 80	Sesqui 14 —	Sodium sulfate 64 Sodium sulfate 77 Table salt 23	9.7 11.5	Savogran Co., Boston Cannon Chem. Co., Everett, Mass. Procter & Gamble, Ivorydale, Ohio Dri-Kleen Co., Chicago E. I. duPont de Nemours & Co., Wilmington	
<i>Elgin Cleaner</i> <i>Fastex</i> <i>Flexo</i> <i>Flicker</i>	—	Pyro 11 Tsp. 76	Sesqui 24 Carbonate 70 Carbonate 3	—	11.2 10.4 12.0	3½ lb. box 14 oz. carton 2 lb. carton over 4 oz.	Made for Sears, Roebuck & Co. Fastex Prod. Co., Detroit Swift & Co., Chicago Columbus Chem. Co., Chicago
<i>Hurricane</i>	Sulfated 10	Tsp. 97 Tsp. 26	Pyro 30 Pyro 2	Borax 62	9.5	4 envelopes in carton	Lakeside Products, Chicago
<i>Jack Rabbit</i>	Sulfated 10	Tsp. 15	—	Sodium sulfate 75	11.1	—	Sugar Beet Prod. Co., Saginaw, Mich.
<i>Klenzol</i>	Sulfated trace	Tsp. 20	Sesqui 73	—	10.1	1 lb. carton	Nu-Ox Prod. Co., Long Island City
<i>Melto</i> <i>Napteen</i> <i>New Formula 6-3-1</i> <i>Nocil</i>	Sulfated 3 Sulfated 5 Sulfated 3	Tsp. 11 Pyro 11 Tsp. 91 Tsp. 93 Tsp. 45 Tsp. 36 Pyro 12 Tsp. 73 Pyro 6 Tsp. 58 Pyro 7 Tsp. 51 Pyro 32 Tsp. 81	Bicarbonate 9 Carbonate 4 Sesqui 50 Carbonate 24 Bicarbonate 25 Carbonate 27 Sesqui 91 —	—	11.8 11.7 10.5 10.2	12 oz. carton 1½ lb. carton 1½ lb. carton 1 lb. carton	Hygienic Prod. Co., Canton, Ohio Napteen Laboratories, Syracuse Sterling Distributing Co., Syracuse Rumford Chem. Works, Rumford, R.I.
<i>Perfex</i> <i>Pied Piper</i> <i>Poll-e-ne</i>	Sulfated 3 Sulfated 10	Tsp. 58 —	Sesqui 42	—	11.4 10.0 11.5	8 oz. carton 12 oz. carton 1 lb. carton	Perfex Co., Omaha, Neb. Safety Cleanser Co., Saginaw, Mich. Advance Labs., Inc., Saginaw, Mich.
<i>Sceen</i>	—	Pyro 18 Hexameta 1 Pyro 5 Hexameta 4 Pyro 10 Tsp. 60 Pyro 2 Tsp. 81	Sesqui 72 —	Table salt 26 Sodium sulfate 53	10.5 6.2 7.4	1 lb. carton 5 oz. carton	Lee Meek, Chillicothe, Mo.
<i>Scoop</i> <i>Shaw's Acid Soapless Suds</i> <i>Shur Wonder-Wash</i>	Sulfonated 10 Sulfated 73 Sulfated 38	Pyro 18 Hexameta 1 Hexameta 4 Pyro 10 Tsp. 60 Pyro 2 Tsp. 81	Sesqui 88 Sesqui 36	—	10.1 11.1	1 lb. carton 1 lb. carton	The F-R Corp., N.Y.C. H. L. Shaw & Sons, Boston Shur-Gloss Mfg. Co., Chicago
<i>Sing-Household Cleaner</i> <i>Sming Scot</i>	Sulfonated 2 Sulfated 2	—	Carbonate 15	Ammonium chloride 4	10.9	1½ lb. carton	Hood Chemical Co., N.Y.C. Ohio Labs., Inc., Columbus, Ohio
<i>Soitax Formula B</i>	—	—	Sesqui 33	Sodium metasilicate 6	9.9	1¾ tin can	Economics Lab., Inc., St. Paul, Minn.
<i>Solventol</i>	—	—	—	Sodium sulfate 57	6.5	10 oz. carton	Solventol Chem. Prod. Inc., Detroit
<i>Sweet Tide</i>	Sulfonated 40 Sulfated 25	Hexameta 3 Sodium tri-polyphosphate 52	—	Sodium sulfate 18 and water	9.74	1½ lb. carton	H. J. Heinz Co., Pittsburgh, Pa. Procter & Gamble Co., Ivorydale, Ohio

Granular Products		Type and Percentage of Synthetic Detergent approx. <sup>1</sup>	Type and Percentage of Phosphates approx.	Type and Percentage of Carbonates approx.	Other Salts in %	pH in 1% solution	Packaging	Manufacturer
Tish	—	—	Tsp. 60	Carbonate 40	—	11.3	1½ lb. carton	American Soap Powder Works, Inc., Brooklyn, N.Y.
Trig	—	Sulfated 10	Tsp. 39	Sesqui 61	—	10.5	26 oz. carton	Franklin Chemical Co., Rochester, N.Y.
Va-Jeo	—	Pyro 12	Pyro 2	Carbonate 78	—	10.0	22 oz. carton	Koch Chemical Co., Winona, Minn.
Vet	—	Monoglyceride	Pyro 2	Bicarbonate 1	Sodium sulfate 64	Neutral	12 oz. box	Colgate-Palmolive-Peet Co., Jersey City
Wetalene	—	monosulfate 33	Tsp. 78	Sesqui 18	Sodium sulfate 95	11.3	box	Wetalene Laboratories Inc., Columbus Wool Novelty Co., N.Y.C.
WoolFoam	—	Sulfonated 4	Phosphate trace	—	9.3	5 oz. box	Wool Novelty Co., N.Y.C.	
Liquid Cleaners		Compounds in % Approximate				pH		
<i>Amicee All-Surface Amicee Rug &amp; Upholstery Beacon Zero Bluko</i>	Sulfated 2	Pyro 1	Pyro 1	Hexameta 0.1	—	9.3	1 qt. bottle	Assoc. Merchandising Corp.
	Sulfonated 6	Pyro 1	Pyro 1	Hexameta 0.1	—	8.6	1 pt. bottle	Assoc. Merchandising Corp.
	Sulfated 0.6	Pyro 1	Tsp. 0.25	Hexameta 0.02	—	8.7	1 qt. bottle	Beacon Chem. Corp., Philadelphia
	Sulfated 0.1	—	—	—	—	11.7	1 gal. jug	Cello Wax Co., Baltimore
<i>Bo-Koo New Liquid Soap Bollon's Cleaner Carbona Soapless Lather C-Foam Chem-Cream Des-Tex Foam Ex-Tane Foamclean Maid of Honor O'Cedar Upholstery &amp; Rug Cleaner Old English Household Cleaner C.C. Parsons Household Cleaner Romay</i>	Sulfated 1	—	—	—	—	8.5	1 pt. bottle	Belmont Labs., Chicago
	Sulfonated 4.4	—	—	—	—	7.5	1 qt. bottle	Bolton Prods., Cleveland
	Sulfonated 5	—	—	—	—	6.6	1 pt. bottle	Carbona Prod. Co., N.Y.C.
	Hexameta 0.5	—	—	—	—	7.1	1 pt. bottle	Klo-Tox Prods. Co., Syracuse
	Sulfated 2.2	—	—	—	—	7.9	1 gal. jug	Southern Supply Co., Pasadena
	Sulfonated 6	—	Tsp. 2.5	—	—	9.2	1 pt. bottle	Research Inc., Chicago
	Sulfonated 0.5	—	Tsp. 3	—	—	11.1	1 qt. bottle	Stanco Inc., Bayway, N.J.
	Sulfonated 1	—	—	—	—	4.0	1 pt. bottle	J.N.T. Mfg. Co., Wheaton, Ill.
	Sulfonated 2	—	Tsp. 1	—	—	10.5	1 qt. bottle	Made for Sears, Roebuck & Co.
	Sulfated 0.3	Pyro 3	Tsp. 3	—	—	9.0	1 pt. bottle	O'Cedar Corp., Chicago
	Sulfated 2.0	Pyro 0.5	Tsp. 0.5	—	—	11.1	1 qt. bottle	A. S. Boyle Co., Jersey City
<i>Rugodex SA Sani-Wash</i>	Sulfonated 2	Hexameta 0.1	—	—	—	11.9	1 qt. bottle	Parsons Ammonia Co., N.Y.C.
	Sulfonated 5	Hexameta 0.1	—	—	—	10.2	1 qt. bottle	Roman Cleanser Co., Detroit
	Sulfated 4	Pyro 0.1	—	—	—	7.1	1 pt. bottle	Magitex Co., Saco, Maine
<i>See-More Liquid Foam Cleaner Soil-Off</i>	Sulfated 1	Hexameta 0.1	—	—	—	7.1	1 pt. bottle	Simoniz Co., Chicago
	Sulfated 0.1	Pyro 0.1	—	—	—	7.5	1 qt. bottle	Ful-Shade Brite Labs., Rochester, N.Y.
	Sulfated 4	Tsp. 1	—	—	—	9.4	1 qt. bottle	Seymour Prock Co., Chicago
<i>Squick Standard Cleaner</i>	Hexameta 4	Bicarbonate 0.1	Borax 1.5	—	—	9.9	—	Soil-Off Co., Decatur, Ill.
	Pyro 2	—	Ammonia 1	Table salt 1	—	6.3	—	George Stuart, Baltimore, Md.
	Hexameta 2	—	—	—	—	6.6	1 qt. bottle	Made for Bloomingdale, N.Y.C.
<i>Tidy</i>	Tsp. trace	Pyro 0.2	—	—	—	10.6	1 qt. bottle	Crafton Chemical Co., Richmond, Va.
<i>Tom Kon's Concentrate Vario General Household Cleaner</i>	Sulfonated 0.2	Pyro 1	Ammonia 1	—	—	10.7	8 oz. bottle	Tom Kon Co., Indianapolis
	Sulfonated 0.2	Tsp. 0.2	Carbonate 0.3	—	—	11.0	1 qt. bottle	Chemicals Inc., San Francisco
		Pyro 0.4	—	—	—	—	—	

<sup>1</sup> This figure, in most cases, includes the percentage of sodium sulfate (builder).

a high pH value, may be used in very dilute solution only, by themselves. Such dilute solutions are suitable for washing windows and paint; too strong a solution will attack paint or varnish.

Incidentally, if one is interested in checking the approximate pH value of an alkaline solution, it can be done by purchasing from a local druggist or a chemical supply house a small amount of an alcoholic solution of an indicator called phenolphthalein.<sup>1</sup> A drop of this indicator solution will color an alkaline solution pink to red, varying with the degree of alkalinity. Pale pink will indicate a faintly alkaline pH, while deep red will indicate a strongly alkaline pH.

By comparing the color of a solution of commercial cleaner with that of a solution of pure toilet soap such as *Ivory*, *Lux*, *Swan*, etc., it is easy to tell whether the cleaning solution is much more alkaline than the harmless soap solution. The color of the solution which is to be used should be at most only moderately deeper in tint than that of the soap. (The deep red color given by a strong alkali can be observed by dissolving a half teaspoonful of tsp.—*Oakite*—in a glass of water and adding a drop of indicator solution.)

The granular products containing a synthetic detergent are often overextended with inorganic salts; a good synthetic powdered cleaner should contain a fair proportion of the actual detergent, if to be used for general cleaning purposes, as in the laundry. Otherwise it will have to be used at a correspondingly higher concentration and will probably be less economical in the end. Products containing only 2% or 3% of detergent have enough to give some foam but not enough for any real cleaning effect (just as so-called "soap powders" containing 2% to 3% of soap and 98% to 97% of alkaline salts can-

not be considered to be soap). The highly alkaline mixtures must be handled with caution, as discussed under pH.

As compared with solids, the liquids nearly always appear to offer less value. As will be seen in the table, many of the liquids contain only a few percent of dissolved ingredients, *often less than 5%*.

Since the concentration of a synthetic detergent for optimum cleaning has been found to be about 0.2%, a product like *Beacon Zero* containing only 0.6% of synthetic detergent should be diluted with only two parts of water in use. But who would want to buy a cleaner more than 98% water? Apropos of this, a name like *Tom Kon's Concentrate* borders on the misleading, since the dissolved material amounted to only about 2%.

In general the liquids tend to contain smaller proportions of active detergent than the solids. The liquid having the highest pH, *C. C. Parson's Household Cleaner*, should be greatly diluted in use in order to reduce the alkalinity to a proper degree. (When this is done, the 0.3% of synthetic detergent will be reduced to an amount too small to have noticeable cleaning action.)

Some of these products are recommended by their manufacturers as upholstery cleaners, for which they should be better suited than soap. The reason for this is that whatever detergent is used, it cannot be rinsed out of the upholstery; soap leaves a residue likely to become rancid and objectionable in time. The synthetic detergent is chemically more stable, so that a slight residue should do no significant harm.

The sulfated and sulfonated synthetic detergents are important products and are here to stay. They are better suited than soap for cleaning in hard water. Their high foaming power and the resistance of their residues to the development of rancidity make them far better suited than soap products to the cleaning of upholstery.

Their low alkalinity offers an important advantage for washing wool and silk.

Cleaning products as offered to the public have to be judged from the economic standpoint, in terms of their content of active detergent. Unless they contain a reasonable proportion of active synthetic detergent, they are not good general cleaners but are suitable only for special cleaning tasks; the analyses here presented of the products show many to be primarily water softeners and cleaners for glass, but *not* good substitutes for soap.

## Ingredients in Cleaners

In the accompanying tables, the composition of some powdered and liquid soapless cleaners has been tabulated as to content of ingredients. Powders and liquids are listed separately in alphabetical order. All of the liquids are aqueous solutions. The kind of ingredients in terms of the preceding discussion, and the proportions present serve to show the relative value and cleaning efficiency of the products.

In the table showing the composition of granular products, the sodium sulfate is in most cases included in the percentage figure for sulfated and sulfonated detergents. Exceptions in the sulfated class are *Dreft*, *Dirt Buster*, *Hurricane*, *Shur Wonder-Wash*, and *WoolFoam*. *Dreft*, the best known, contains about 23% of actual alkyl sulfate, while *WoolFoam* contains only 5%. Prices of all these products are not at hand, but at the time the data were prepared, it was deemed probable that *Dreft* offered more for the money than any of the other cleaners containing synthetic soap substitutes. In the sulfonated class, analysis shows *Swerl* to contain 40% of alkyl aryl sulfonate, 57% of sodium sulfate, and 3% of hexametaphosphate. Comparable to *Dreft*, *Swerl* was considered the outstanding commercial product based on a sulfonate detergent.

<sup>1</sup> One source is the Biological Supply Co., 1176 Mt. Hope Ave., Rochester 7, N.Y., which charged 85c for a 4-oz. bottle (60c plus 25c for packing).

# Tennis Balls

EIGHT samples of tennis balls have been tested for compliance with requirements of the U. S. Lawn Tennis Association as to weight, size, deformation under load, and rebound. Thicknesses of rubber and cover were measured, as was also the strength of adhesion between the cover and the rubber. The balls were artificially aged for one week at 158°F, after which they were again checked for rebound. Wear resistance of the covers was determined as the loss of weight after 24 and 48 hours of wear in a cylindrical tumbling-barrel running at 25 revolutions per minute. The walls of this testing device were  $\frac{1}{4}$ -inch mesh steel "hardware cloth," properly baffled to keep the balls constantly agitated.

Some rather interesting differences between the present test and the one conducted in 1940 were noted. Strength of adhesions (running from about 5 to 22 pounds per inch width) tended to be lower than in 1940, particularly for samples using pink rubber. Playing tests made in 1938 indicated that rebound increased as the cover wore off; curiously enough, in the 1948 test, the samples showing the greatest wear showed the least increase in rebound. In the deformation tests, all the balls were found to be too soft with the exception of Montgomery Ward's Cat. No. 60—4500.

The balls tested were all of brands marketed in pressure cans. All met U.S.L.T.A. requirements for weight and size except as noted. Ratings are cr48.

## A. Recommended

*Pennsylvania* (Penna. Rubber Co., Jeanette, Pa.) 3 for \$1.95. Showed least wear and highest adhesion of cover of all the brands tested. Met U.S.L.T.A. requirements for rebound. Resistance to aging, very good.

*Wilson* (Wilson Sporting Goods Co., Chicago) 3 for \$1.80. Slightly greater cover wear than *Pennsylvania*. Cover adhesion, good. Met U.S.L.T.A. requirements for rebound. Resistance to aging, very good.

## B. Intermediate

*Dunlop* (Dunlop Tire and Rubber Corp., Buffalo) 3 for \$1.80. Cover showed slightly more wear than *Pennsylvania*. Cover adhesion, good. Met U.S.L.T.A. requirements for rebound. Resistance to aging, very good.

*MacGregor* (MacGregor Golf, Inc., Cincinnati 32) 3 for \$1.80. Showed very little cover wear. Cover adhesion, good. Rebound, slightly below requirements; was slightly too heavy to meet U.S.L.T.A. requirements. Resistance to aging, good.

*Wards* (Montgomery Ward's Cat. No. 60—4500) 3 for \$1.49. Cover wear, about the same as *Dunlop*. Cover adhesion, fair. Rebound, excessive. Resistance to aging, good.

## C. Not Recommended

*J. C. Higgins* (Sears-Roebuck's Cat. No. 6—1231) 3 for \$1.49. Cover wear, appreciable. Cover adhesion, fair. Rebound, excessive. Resistance to aging, good.

*Spalding* (A. G. Spalding Bros., N.Y.C.) 3 for \$1.80. Cover wear, appreciable. Cover adhesion, fair. Rebound below U.S.L.T.A. requirements; poorest in this respect of the balls tested. Resistance to aging, best of samples tested.

*Wright and Ditson* (A. J. Reach, Wright & Ditson, N.Y.C.) 3 for \$1.80. Wear of cover greatest of all the brands tested; otherwise would have warranted a *B-Intermediate* rating. Cover adhesion, fair. Rebound, excessive. Resistance to aging, very good.

## Off the Editor's Chest

(Continued from page 2)

their clients not only the lack of permanency of some ball pen inks, but also pointed out that ball-point pen signatures are easier to forge than signatures written with a standard pen. An individualized signature which is distinctive and difficult to forge, comment authors Elbridge W. Stein and Ordway Hilton, is next to impossible to achieve with the use of a ball point pen. The only individuality secured with the ball point pen is the form of the letters, which is the element of a signature that is easiest for a forger to duplicate. Character-

istic of a forgery is the hesitant uncertainty of a line or retouching, and with the standard type of pen the defective quality of a traced line can be detected by the alterations in thickness of the line as nibs of the pen deflect and are returned to normal. With the ball point pen the generally irregular ink deposit of a written line makes it a "natural" for the forger to imitate a person's writing or a signature closely.

When these new pens were put on the market with a great fanfare, CR was besieged by questions

from subscribers eager to know whether the claims were justified. It took time to examine the new products and it took time to obtain samples of some advertised brands for test. The fading tests, too, conducted in daylight, sunlight, and under ultraviolet lamps, of course, required time. CR's first unfavorable reports brought forth a storm of opposition from emissaries of interested manufacturers. Even a representative of one government department sought to intervene on the side of a pen manufacturer whose product had been found practically worthless from the standpoint of permanence of recording.

That the pens themselves did not merit the wave of popularity that they first achieved is now undisputed. It has, however, taken two or three years to bring to light all the numerous disadvantages and defects inherent in the design of the ball pens. Consumers who were cautious have saved an expenditure of some ten or fifteen dollars or more by waiting. Altogether, a good many millions of dollars would have been saved if people generally had asked themselves the simple question, "What quality of this pen makes it better than the pens that I am now using?" and if they had remembered that the purpose of a pen is not merely to make a mark (for a pencil will do that), but to make a permanent and characteristic mark that cannot be forged. How much more they would have saved by reducing the chances of having their signatures

forged and their wills and life insurance applications rendered open to objection in case of future litigation is something no one can estimate. Those who wish to experiment with the pen as a *novelty* can now do so at a trifling cost.

Alexander Pope was doubtless not aware of the consumer as an economic entity when he wrote: "Be not the first by whom the new are tried," but he certainly set down a piece of advice that persons of moderate means and thrifty people will do well to follow.

In CR's experience, the millions-of-dollars mistakes of the ball-point pen manufacturers and their customers can be exemplified many times over. There have been scores of articles about which consumers were exceedingly anxious to get information long before the products *could* have had time to be subjected to some of the kinds of tests which are necessary before findings of a dependable nature can be made available. During the period during which a new product is being "shaken down," the consumer to whom money is an object—and there are many millions of such people in these days of high prices—will do well to let the "free spenders" do the experimenting and helping the manufacturer find out what he himself often does not know, whether his product is any good, or worthy of a permanent place in the galaxy of appliances and articles that make for greater convenience and economy.

## COLUMBIA'S NEW LONG PLAYING RECORD

THE wide publicity given the *Columbia Long Playing Microgroove* records has created considerable public interest. If these new records turn out to give high-fidelity reproduction when used with first-class amplifier and speaker equipment, and if they will stand up well under repeated use, they will certainly constitute one of the most significant advances in the record industry since the development of electrical recording techniques.

Now you may hear as much as 45 minutes of music on two sides of a 12-inch vinylite disk—a symphony on a single record. This is a playing time about  $5\frac{1}{2}$  times as long as the conventional 12-inch disk, which offers about 8 minutes' playing time per record (2 sides).

The new record was developed after three years of laboratory work under direction of Dr. Peter C. Goldmark, Director of Engineering Research and Development for the Columbia Broadcasting System.

The special record player is equipped with a turntable running at about 33 revolutions per minute and a one mil radius (.001 inch) sapphire stylus mounted in a pickup giving a pressure on the record of 6 grams (about  $1/5$  ounce). From 224 to 300 grooves per inch appear on *Microgroove* records against the conventional 85 to 100 grooves. These are essential elements of the new playback system.

Columbia and Philco will offer such a record player for attachment to your present equipment for \$29.95, but time alone will tell whether this inexpensive player is good enough and steady enough in rotational speed to do the job.

Of major interest to the enthusiastic collector is the problem of record storage. Under the new system, a given amount of music may be stored in about  $1/6$ th the space required by conventional disk.

As for price: a six-record Columbia album of conventional 12-inch disks sells for \$13 when pressed on

vinylite and \$8.50 when pressed on shellac. About the same amount of music will be available on a vinylite *Microgroove* record for \$4.85. (Ten-inch records, \$3.85.) Columbia has already prepared a catalogue of 101 records, principally major classical works, and promises a dozen or more releases a month beginning in September.

Film, tape, wire recording, 16-inch transcriptions, and other recent systems were investigated before the *Microgroove* was adopted. It was decided to develop a long playing disk record and at the same time improve the fidelity of reproduction and ease of use. A low marketing-price was considered essential, too. One reason, of course, for adopting the *Microgroove* system was that it did not render obsolete the records and equipment consumers already own, for the new record allows for a gradual transition with only moderate extra costs to the user.

Quite likely, many phonograph manufacturers will soon include the components of the new record player in their regular commercial models; likely, too, Columbia's competitors will be issuing long playing records if the method works out as well commercially as it appears, on first consideration, to function from the listener's standpoint.

It is too early to arrive at a conclusive opinion regarding the fidelity of these records, as they have been available for test purposes only for a few days, as these notes are written. While it is still not possible to make close comparison with the 78 rpm. records, they certainly do give acceptable reproduction, and we believe often considerably better reproduction than that given by many 78 rpm. records of standard brands which consumers have found quite satisfactory. Tentatively, the opinion is that the new record played with the *Philco* turntable and pickup does not give quite the high-frequency response of the best 78 rpm. records, lacks

certain body and richness of bass which are available in the best 78 rpm. records played with the *Pickering* or *Clarkstan* pickups, and shows less effective transients (an effect which is also a function of less adequate high-frequency response). These defects, such as they are, are quite possibly related to the use of a crystal pickup in the *Philco* record-player rather than one of the good magnetic pickups presently available.

As soon as more complete information on these records is available, it will be supplied to readers of CR BULLETINS; in the meantime, consumers may be assured that the *Long Playing Microgroove* records are good and that they afford a valuable convenience to record listeners—to say nothing of the approximately 40 percent lower cost per playing minute they afford.

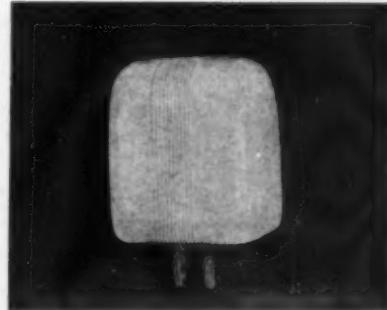
One element that has been found to be of special importance when playing the new records is turntable rumble. *Microgroove* records will need to be used with turntable equipment of very good mechanical design and workmanship if rumble is to be reduced to a satisfactorily low level. (There is no reason at this time to doubt that manufacturers of low-priced turntables can satisfactorily solve this problem.)

The main questions yet to be resolved are the possibility of more rapid wear than standard records (preliminary tests have tended to indicate that wear is not too great after 250 playings, but this question requires further investigation); the rate of wear of the .001-inch radius stylus; the fidelity of musical reproduction at the inner grooves; the over-all fidelity as to frequency range and dynamic range. Some of these can be determined easily, as time permits. Some will require special test equipment, not immediately available, and the answers may not be ready for several months.

## The Ranger Electronic Inverter— A Device for Improving Electric Shaver Operation

THE *Ranger Electronic Inverter* is a small electrical plug-in device which converts 60-cycle alternating current into direct current in amounts sufficient for the operation of electric shavers which are rated for ac-dc operation.

According to the manufacturer's claim, the effectiveness of the device depends upon its use of direct current to drive the shaver, thus "giving you a faster, smoother, cleaner



shave." In general this was substantiated in practice.

The various tests which were

performed in order to ascertain the usefulness of the device included power input measurements for several razors used on a.c. alone and on a.c. as converted by use of the *Inverter*. In addition, the speeds of various electric razor motors were measured both with and without the *Inverter* in the circuit, actual shaving tests were made, and finally noise measurements were taken to ascertain whether the noise emitted by an electric

razor was less when used in conjunction with the *Inverter* than when used on a.c. only.

It was found that razor motor speeds were increased in all cases when the *Inverter* was used, varying from about an 8% speed increase for the *Remington Threesome* to a 13% increase for the *Sunbeam Shavemaster*. With this increase in operating speed there was also, as a rule, a slight increase in noise and an increase in the power consumed by the razor when the *Inverter* was in the circuit. There would be no

objection to this increase provided that the extra power did not result in greatly increased temperature, or overheating of the shaver.

No tests were performed to ascertain possible differences in shaver life when used in conjunction with the *Inverter*. It is not considered likely that the use of the *Inverter* will be harmful in view of the limited duration and the intermittent nature of the use of electric shavers in the home by the individual consumer.

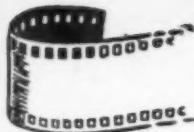
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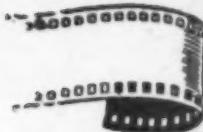
Indicates that listings of names or brands are included.

### B. Intermediate

**Ranger Electronic Inverter**, Model 906 (Electronic Specialty Co., 3456 Glendale Blvd., Los Angeles 26) \$4.95. Rated input 110-120 volts, 50-60 cycles at 20 watts; rated output 110-120 volts d.c., 15 watts maximum. For use only with electric shavers with ac-dc 110-volt motors. Circuit components were a small selenium rectifier and an electrolytic condenser which were mounted in an ivory plastic case about 2 in. x 2 1/2 in. x 2 1/2 in. In use the device is plugged into any 60-cycle 110-volt a-c outlet and the shaver to be used is in turn plugged into a receptacle in the device. Appliance seems overpriced, for the advantage it affords. 3



# Ratings of Motion Pictures



THIS section aims to give critical consumers a digest of opinion from a wide range of motion picture reviews, including the motion picture trade press, leading newspapers and magazines—some 19 different periodicals in all. The motion picture ratings which follow thus do not represent the judgment of a single person, but are based on an analysis of critics' reviews.

The sources of the reviews are:

*Box Office, Charm, Chicago Daily Tribune, Cue, Daily News (N.Y.), The Exhibitor, Harrison's Reports, Motion Picture Herald, National Legion of Decency List, Newsweek, New York Herald Tribune, New York Times, Parents' Magazine, Release of the D.A.R. Preview Committee, Successful Farming, Time, Variety (weekly), Weekly Guide to Selected Motion Pictures (National Board of Review of Motion Pictures, Inc.), and Unbiased Opinions of Current Motion Pictures which includes reviews by the General Federation of Women's Clubs, the American Legion Auxiliary, National Film Music Council, and others.*

The figures preceding the title of the picture indicate the number of critics who have been judged to rate the film A (recommended), B (intermediate), and C (not recommended) on its entertainment values.

Audience suitability is indicated by "A" for adults, "Y" for young people (14-18), and "C" for children, at the end of each line.

Descriptive abbreviations are as follows:

adv—adventure	hist—founded on historical incident
biog—biography	mel—melodrama
c—in color (Technicolor, Cinecolor, Trucolor, Magnacolor, Vitacolor, etc.)	mus—musical
car—cartoon	myst—mystery
com—comedy	nov—dramatization of a novel
cri—crime and capture of criminals	rom—romance
doc—documentary	soc—social-problem drama
dr—drama	trap—travelogue
fan—fantasy	war—dealing with the lives of people in wartime
wes—western	

A	B	C	
—	5	—	Abbott & Costello Meet
—	4	—	Frankenstein..... com A
—	6	4	Adventures in Silverado..... wes AYC
—	3	5	Adventures of Casanova..... adv A
2	8	8	Alias a Gentleman..... com A
—	5	3	All My Sons..... dr A
—	4	1	Angelina..... propaganda-dr A
—	6	13	Angels' Alley..... com AYC
—	8	8	Anna Karenina..... dr A
—	6	2	Another Part of the Forest..... dr A
—	5	9	Antoine et Antoinette..... com A
1	3	13	April Showers..... mus-com A
—	7	9	Arch of Triumph..... war-dr A
—	4	3	Are You With It?..... mus-com AY
—	6	—	Argyle Secrets, The..... cri-mel A
—	2	4	Arizona Ranger, The..... wes A
—	3	3	Arthur Takes Over..... com A
1	3	2	Assigned to Danger..... cri-mel AY
—	3	8	Babe Ruth Story, The..... mus-biog AYC
—	12	5	Bad Sister..... nov A
—	5	1	Berlin Express..... war-mel AY
—	—	3	Best Man Wins..... com A
—	2	2	Betrayal, The..... mel A
3	6	8	Beyond Glory..... dr A
1	10	5	B. F.'s Daughter..... nov A
5	9	2	Big City..... mus-dr AYC
—	5	3	Big Clock, The..... cri-mel A
—	5	—	Big Punch, The..... dr A
—	12	1	Big Town Scandal..... mel AVC
—	5	—	Bill and Coo..... com-c YC
—	3	10	Black Arrow, The..... adv AY
—	2	3	Black Bart..... wes-c AYC
—	—	—	Black Hills..... mus-wes AYC
—	1	7	Blind Desire..... dr A
—	2	2	Blonde Ice..... mel A
—	3	1	Blondie's Reward..... com AYC
—	—	5	Bohemian Rapture..... mus-biog A
1	8	4	Bold Frontiersman, The..... wes AYC
—	7	4	Bride Goes Wild, The..... com A
—	5	4	Brothers, The..... dr A
—	2	3	Caged Fury..... mel AY
—	5	3	California Firebrand..... mus-wes-c AYC
—	—	5	Campus Honeymoon..... mus-com A
—	8	2	Campus Sleuth..... mus-com AY
—	2	2	Canon City..... doc-cri-mel A
—	6	8	Carson City Raiders..... wes AYC
—	7	1	Casbah..... mus-mel A
—	1	3	Challenge, The..... mys-mel AY
—	1	7	Clandestine..... war-dr A
—	—	5	Close-Up..... war-mel A
—	6	—	Cobra Strikes, The..... cri-mel A
1	5	—	Confessions of a Rogue..... com A
—	4	2	Coroner Greek..... wes-c A
—	2	3	Counterfeitors, The..... mel A
—	—	3	Crime and Punishment..... dr A
—	4	1	Crossed Trails..... wes AYC
—	8	1	Dammed, The..... war-dr A
—	2	5	Date With Judy, A..... mus-com-c AY
—	7	6	Day of Wrath..... mel A
—	8	3	Dear Murderer..... cri-mel A
—	7	2	Deep Waters..... dr-c AYC
—	1	3	Design for Death..... war-doc A
—	—	5	Devil's Cargo..... mys-mel A
—	6	7	Docks of New Orleans..... cri-mel AY
—	1	8	Dream Girl, The..... com A
—	8	—	Dreams That Money Can Buy..... fan-c A
2	11	1	Dude Goes West, The..... wes-com AYC
3	11	2	Easter Parade..... mus-com-c AYC
—	1	6	Emperor Waltz, The..... mus-com-c AY
—	2	7	Enchanted Valley, The..... dr-c YC
—	4	4	End of the River..... dr A
1	6	2	Escape..... nov A
—	5	1	Fanny..... dr A
—	3	3	Farrebique..... dr A
—	—	3	Feudin', Fussin', and A-Fightin'..... mus-com AYC
—	10	6	Fighting Father Dunne..... dr AYC
—	5	1	Fighting Mad..... mel AY
—	—	3	First Opera Film Festival..... mus-dr A
—	3	4	Fledermaus, Die..... mus-com-c A
4	7	3	Foreign Affair, A..... mus-com A
2	11	3	Fort Apache..... wes AYC
1	7	1	Four Faces West..... wes-dr AYC
—	1	5	French Leave..... com AY
—	3	2	Fric-Frac..... com A
—	3	2	Friend Will Come Tonight, A..... war-mel A
—	9	3	Fuller Brush Man, The..... cri-com A
—	9	3	Fury at Furnace Creek..... wes AYC
—	5	—	Gallant Legion, The..... mus-wes AYC
—	4	3	Gay Intruders, The..... mus-wes A
—	5	2	Gay Ranchero, The..... mus-wes-c AYC
—	—	3	Gelosia..... cri-dr A
—	10	3	Give My Regards to Broadway..... mus-com-c AY
—	11	2	Green Grass of Wyoming..... dr-c AYC
—	1	4	Guns of Hate..... wes AYC
—	—	9	Half-Past Midnight..... mys-mel A
2	4	1	Hamlet..... dr A
—	2	10	Hatter's Castle..... mel A
—	1	3	Hawk of Powder River, The..... wes AYC
—	3	13	Hazard..... com A
—	—	5	Heart of Virginia..... dr AYC
—	2	3	Henry IV..... hist-dr A
—	—	6	Here Comes Trouble..... com-c A
—	11	—	Holiday Camp..... com A
1	8	6	Homecoming..... war-dr A
—	4	2	Hunted, The..... mel A

A	B	C	A	B	C
—	3	I Became a Criminal	—	3	11 Saigon
—	3	I, Jane Doe	—	7	8 mel A
5	12	I Remember Mama	—	8	6 "Sainted" Sisters, The
—	1	I Wouldn't Be In Your Shoes	com AYC	4	11 3 Scudda-Hoo! Scudda-Hay!
1	5	Ideal Husband, An	cri-mel A	—	1 war-dr AY
—	2	Idiot, The	com-c A	—	5 Secret Service Investigator
1	6	If You Knew Susie	dr A	—	4 cri-mel AY
—	11	If Winter Comes	mus-com AYC	—	4 dr-c AYC
—	1	Illegals, The	dr A	—	10 Showtime
—	5	Inside Story, The	doc-dr A	—	4 dr A
3	12	Iron Curtain, The	com AYC	—	9 wes AYC
—	2	Jassy	doc-mel AYC	4	12 1 Silver River
1	5	Jenny Lamour	nov-c A	—	2 wes-dr A
—	3	Jiggs and Maggie in Society	mus-mel A	—	5 Sitting Pretty
4	2	Jinx Money	com A	—	2 com A
2	3	Key Largo	mys-mel AY	—	4 mus-wes AYC
—	3	King of the Bandits	mel A	—	6 mel-c AY
—	5	King of the Gamblers	wes AYC	—	5 cri-mel A
—	5	Lady from Shanghai, The	mus-mel A	—	6 So Evil My Love
—	4	Let's Live Again	com A	—	2 dr AYC
—	6	Letter from an Unknown Woman	dr A	—	3 So This Is New York
—	1	Lightnin' in the Forest	cri-com A	—	2 war-dr A
2	8	Lost One, The	mus-dr A	—	2 Song of Idaho
—	4	Lover's Return, A	com A	—	5 Speed to Spare
—	1	Lucky Bride, The	mus-com A	—	2 Spring
—	4	Lulu Belle	mus-mel A	—	4 Stage Struck
—	3	Lysistrata	dr A	—	2 Stage to Mesa City
—	2	Madonna of the Desert	mel AY	—	4 wes AYC
—	1	Man from Texas, The	wes A	—	5 State of the Union
—	1	Man of Evil	mel A	—	6 Strawberry Roan, The
—	6	Man-Eater of Kumaon	mel A	—	7 Street With No Name, The
1	1	Marius	com A	—	3 cri-mel A
—	8	Mating of Millie, The	com AYC	—	5 mus-com-c A
—	3	Meet Me at Dawn	com A	—	2 dr-c AY
3	8	Melody Time	mus-car-c AYC	—	3 Sword of the Avenger
—	4	Michael O'Halloran	dr AYC	—	4 Take My Life
—	3	Mickey	mus-com-c AYC	—	5 Tap Roots
—	2	Mine Own Executioner	mel A	—	4 Tarzan and the Mermaids
—	7	Miracle Can Happen, A	com A	—	6 adv AYC
3	6	Miracle of the Bells	dr AYC	—	7 Tenth Avenue Angel
—	2	Money Madness	cri-mel AY	—	8 Texas, Brooklyn and Heaven
1	12	Mr. Blandings Builds His Dream House	com A	—	9 com A
—	4	Mr. Orchid	war-dr A	—	10 That Lady in Ermine
—	6	Mr. Peabody and the Mermaid	fan A	—	11 mus-com-c A
—	8	Mr. Reckless	mel A	—	12 They Are Not Angels
3	3	My Dog Rusty	dr AY	—	13 Thirteen Lead Soldiers
—	4	Mystery in Mexico	mys-mel A	—	1 mus-com-c A
—	2	Nails	dr A	—	2 Three Daring Daughters
—	5	Night Has a Thousand Eyes	mel A	—	3 mel-c A
6	1	Noose Hangs High, The	com AYC	—	4 Thunderhoot
4	1	Northwest Stampede	mel-c AYC	—	5 Timber Trail, The
—	3	Not Guilty	mel A	—	6 mus-wes-c AYC
—	7	October Man, The	cri-mys A	—	7 Time of Your Life
2	3	Oklahoma Badlands	wes AYC	—	8 To the Ends of the Earth
—	4	Old Los Angeles	mus-wes AYC	—	9 doc-mel AY
—	7	On An Island With You	mus-com-c AY	—	10 To the Victor
—	1	Overland Trails	wes AYC	—	1 war-mel A
2	7	Paisan	war-dr A	—	11 Tornado Range
—	8	Panhandle	wes-c A	—	12 Train to Alcatraz
1	11	Paradine Case, The	mys-mel A	—	13 Trapped by Boston Blackie
—	3	Partners of the Sunset	mus-wes AY	—	14 mys-mel AY
—	1	Passionelle	dr A	—	15 Treasure of the Sierra Madre, The
2	8	Pearl, The	dr A	—	16 dr A
—	3	Piccadilly Incident	war-dr A	—	17 Twins
1	12	Pirate, The	mus-dr-c A	—	18 cri-dr A
—	2	Port Said	mel AY	—	19 Twisted Road, The
—	2	Portrait of Innocence	dr A	—	20 mus-wes-c AYC
—	2	Race Street	cri-mel A	—	21 Under California Stars
—	5	Raven, The	mys-mel A	—	22 wes-c AYC
—	6	Raw Deal	cri-mel A	—	23 Untamed Fury
—	6	Razzia	mel A	—	24 mel A
5	1	Red River	wes-dr A	—	25 Up in Central Park
—	14	Relentless	wes-c AY	—	26 mus-com A
—	3	Return of the Bad Men	wes AYC	—	27 vacation Days
—	5	Return of the Whistler, The	mys-mel AYC	—	28 mus-wes AYC
—	8	River Lady	mel-c A	—	29 Velvet Touch, The
—	4	Rocky	dr AYC	—	30 dr A
—	10	Romance on the High Seas	mus-com-c A	—	31 Vicious Circle, The
—	3	Rose of Santa Rosa	mus-com AYC	—	32 cri-dr A
—	3	Rossini	mus-biog A	—	33 Voice of the Turtle, The
—	6	Ruthless	dr A	—	34 com A
—	5			—	35 Volpone
—				—	36 com A
—				—	37 Voyage Surprise
—				—	38 com AY
—				—	39 Wallflower
—				—	40 com A
—				—	41 Walls of Jerico, The
—				—	42 dr A
—				—	43 Waterfront at Midnight
—				—	44 cri-mel A
—				—	45 West of Sonora
—				—	46 mus-wes AYC
—				—	47 Western Heritage
—				—	48 mus-wes AY
—				—	49 Whirlwind Raiders
—				—	50 mus-wes AYC
—				—	51 Whispering City
—				—	52 mys-mel A
—				—	53 White Stallion
—				—	54 wes AYC
—				—	55 Who Killed Doc Robin?
—				—	56 cri-com AYC
—				—	57 Who Killed Santa Claus?
—				—	58 dr A
—				—	59 Will It Happen Again?
—				—	60 war-doc A
—				—	61 Winner's Circle, The
—				—	62 dr-c AYC
—				—	63 Winter Meeting
—				—	64 dr A
—				—	65 Woman from Tangier, The
—				—	66 mel A
—				—	67 Woman in White, The
—				—	68 cri-mel A
—				—	69 Woman's Vengeance, A.
—				—	70 mel A
—				—	71 Women in the Night
—				—	72 war-mel A
—				—	73 Wreck of the Hesperus, The
—				—	74 dr AYC
—				—	75 You Were Meant For Me
—				—	76 mus-com AY

# The Consumers' Observation Post

(Continued from page 4)

WINTER RAYONS, that were put away in paper garment bags with woolens and a liberal supply of paradichlorobenzene, may show some fading when they are taken out of storage. Experiments made by CR indicated that contact with vapors from this chemical caused some change of color in blue and green rayon fabrics. No change of color was noted in red and yellow samples after eight weeks' exposure. Where fading did occur, there was no appreciable increase of the fading tendency on contact of the rayon fabrics with wool or paper, such as might occur when a rayon garment has been stored in a paper bag with woolens, and "para" flakes. It would appear wise to store rayon garments in their own bag or trunk, where they will not come in contact with paradichlorobenzene moth flakes.

\* \* \*

YARDLEY HAIR TONIC (Yardley of London, Inc., Union City, N.J.) was found on analysis to consist essentially of water, alcohol, a fatty oil, perfume, and coloring matter. The Federal Food and Drug Administration found the following claims false and misleading: "Regular use aids in maintaining sturdy hair growth"; "Daily massage of the scalp with the finger tips helps to keep the hair healthy. . . . If this daily dozen' is followed by the application. . . of Yardley Hair Tonic, an encouraging response to the treatment results. . . helping to keep the hair in a healthy condition." Consumers will save money if they will remember that hair-tonic manufacturers do not have any more knowledge of how to grow hair or "maintain sturdy growth" or to keep hair healthy than their customers do.

\* \* \*

SIMPLE PLUMBING REPAIRS IN THE HOME is the title of a useful, 14-page pamphlet that may be obtained by sending 5 cents in coin to the Superintendent of Documents, Washington 25, D.C. Small plumbing repairs that are quite costly these days when one is obliged to call in an expert at a shockingly high rate per hour--in big cities, at least--can often be done fairly satisfactorily at

## CR's Big 1948-1949 Annual Cumulative Bulletin scheduled for mailing in just 4 weeks!



THE rush is on! Orders for the forthcoming Annual Cumulative Bulletin which summarizes a wide range of CR's previous findings are coming in so fast that we are fairly swamped. If you sit right down, fill out the order blank on the next page, make out your check, and mail them promptly, we'll try to add your name to the list of those who will be sent a copy as soon as it is off the press. (Otherwise we shall include your order in the supplemental mailing.)

THE Annual Cumulative Bulletin is a confidential issue, available only to private individuals for their personal use and that of their immediate family. It is not included in a subscription but is sent only on special order. Topics discussed are conveniently grouped in sections, including: Household Appliances, and Supplies, Textiles and Clothing, Cosmetics, Heating Equipment, Photographic Equipment, Radio and Phonograph Equipment, Watches and Clocks.

(FOR CONVENIENT ORDER BLANK, SEE NEXT PAGE.)

home with the aid of a good booklet of instructions such as the pamphlet provides. Directions for such minor repairs as fixing leaky faucets, adjusting flush valves, and clearing clogged drain pipes are among the varied jobs that are described.

\* \* \*

COMMERCIAL DRY CLEANING has been revolutionized in recent years by the development of equipment that can be used efficiently in a small neighborhood shop. The solvent is a non-flammable chlorinated hydrocarbon. Only 20 or 30 garments can be cleaned at one time, where the big mass-production cleaners with petroleum-solvent machines can do 75 to 100 at a time; nevertheless, the smaller shops are reported by Fortune magazine to be popular with consumers because they break fewer buttons and lose fewer belts. The big operators are so alarmed at their loss of business that they are putting up quite a campaign in some states to have the small shops banned, as health hazards.

\* \* \*

WINDO STEP, a device advertised as providing a platform for washing, painting, or putting windows on the outside, is made by Morrison Crafters, Inc., 703 Miami St., Toledo 5, Ohio, and sells for \$10.50 postpaid. It consists of two side frames, two arms, and a back of ordinary thin-wall conduit tubing with some parts swaged down to allow the pieces to telescope for adjustment to the thickness of the wall of the house; the step is a piece of 5/8 in. plywood, and there is a heavy (2 in. x 3 in.) piece of wood designed to bear against the window frame and under side of the window sill projection; rubber bumpers prevent marring the woodwork. The device is received "knocked down" with directions for assembly, which are clear enough. To use the Windo Step, the whole assembly must be put out through the window and hooked over the sill, after which the user climbs out on the step and can wash or paint, etc., the entire outside of the window. People with experience in home maintenance and repairing judged that the appliance would entail more work than it saved; and that, while it may be dangerous to sit on a window sill to wash windows, it can be dangerous too to stand on a 9-1/2 in. x 17 in. wooden platform with only a back stop at waist level for protection. The device was so crudely made that the one purchased for test required 45 minutes for two persons to assemble (a point often forgotten by consumers who buy by mail items that require assembling on receipt). Bolt holes in the metal parts had burrs left in them and had to be cleaned out to permit assembly, which is an inexcusable fault of manufacture in a device which must be assembled by inexperienced persons. There were a number of other faults in the appliance. The general conclusion is that Windo Step is C. Not Recommended for the average home owner.

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## Consumers' Research, Inc. Washington, N. J.

Please enter my order as checked. It is understood that my handling of any CR material which is marked "The analyses of commodities, products, or merchandise appearing in this issue of the Consumers' Research Bulletin are for the sole information of Consumers' Research subscribers" will be in accordance with that direction.

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Please check your preference:

I enclose \$1.50 (Canada & foreign, \$1.75) for a copy of the 1948-49 Annual Cumulative Bulletin. Since I am a subscriber to Consumers' Research Bulletin (12 issues), I am entitled to the special rate.

I enclose \$1.75 for a copy of the CR edition of "More Than Skin Deep." Since I am a subscriber to Consumers' Research Bulletin (12 issues), I am entitled to the special rate.

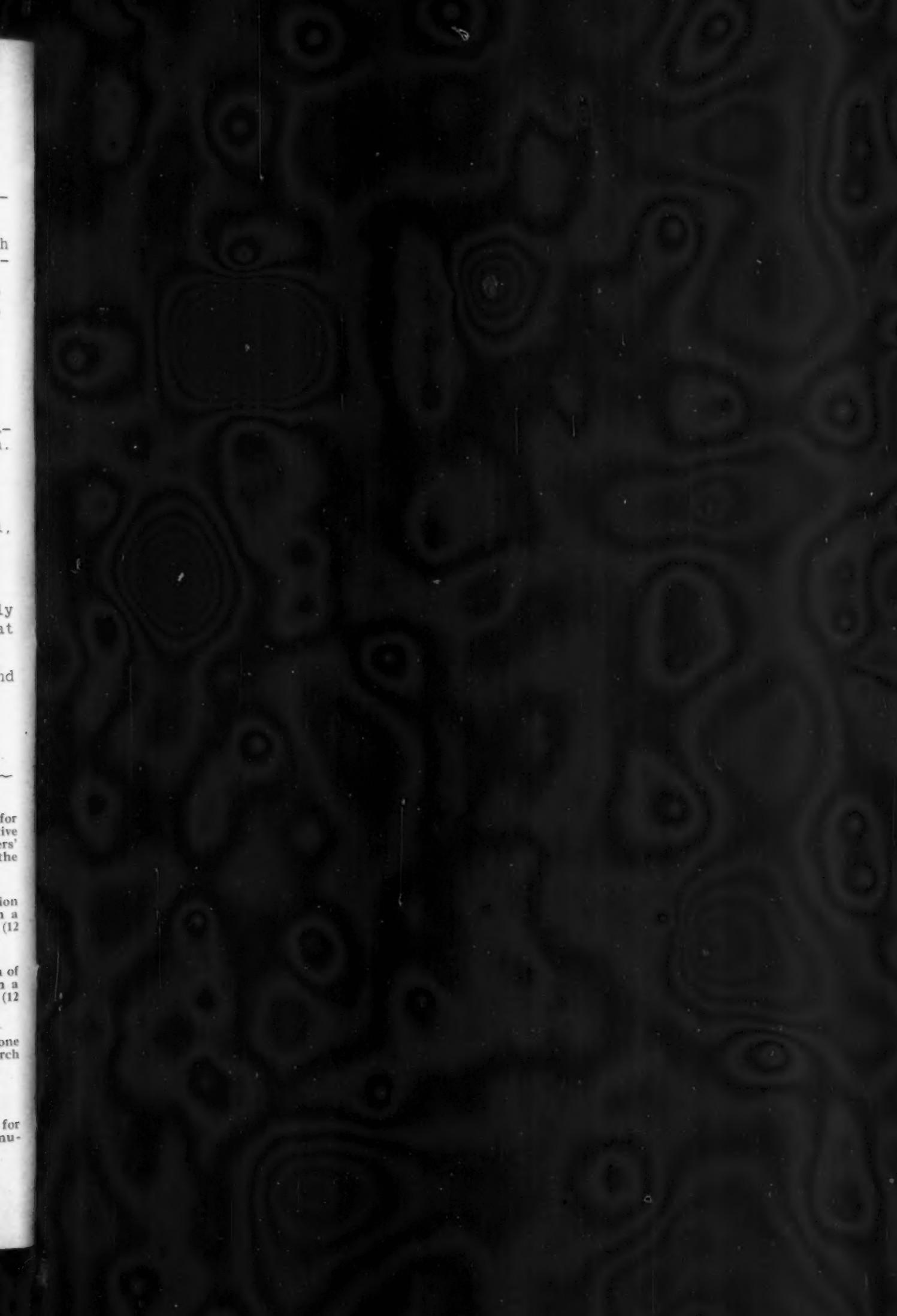
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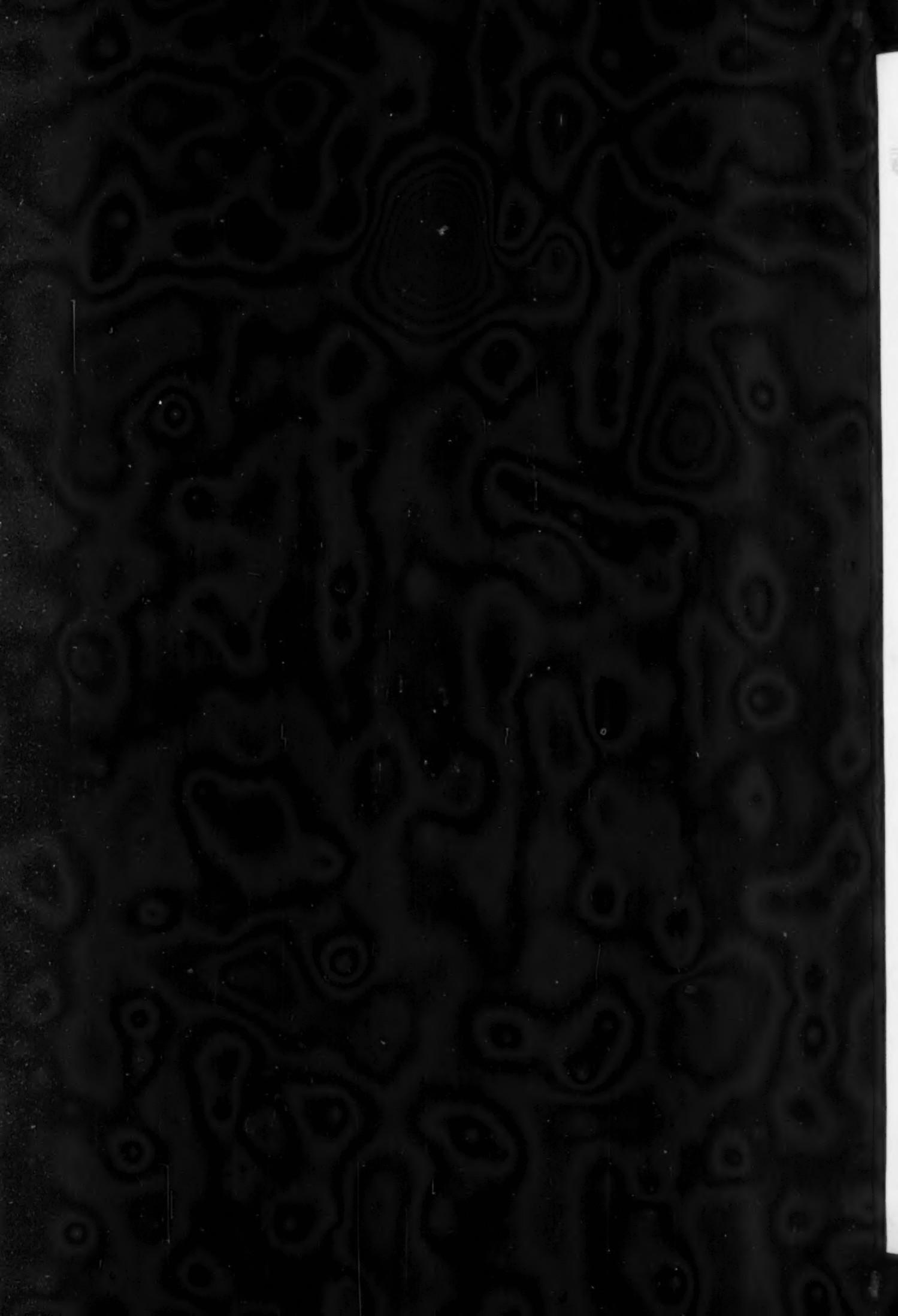
I enclose \$3 (Canada & foreign, \$3.50) for one year's subscription to Consumers' Research Bulletin monthly (12 issues).

New

Renewal

I enclose \$2.75 (Canada & foreign, \$3.00) for a subscription to the 1948-49 Annual Cumulative Bulletin alone when it is ready.





# PHONOGRAPH RECORDS

By Walter F. Grueninger

Please Note: In the ratings AA indicates highly recommended; A, recommended; B, intermediate; C, not recommended.

## ORCHESTRA

**Dé Falla:** *The Three Cornered Hat*—Three Dances. The Philharmonia Orchestra under Galliera. 4 sides, Columbia Set MX 297. \$3.50. Sharply defined Spanish rhythms. Played with more excitement and tenseness by the Boston Pops in Victor Set 505 (\$3). Columbia's English recording lacks highs though the bass and middle are superior to Victor's.

**Interpretation B**  
**Fidelity of Recording A**

**Schachaturian:** *Gayne-Ballet Suite*. Chicago Symphony Orchestra under Rodzinski. 4 sides, RCA Victor Set 1212. \$3.50. These numbers and others appear in Columbia Set 664 (6 sides). Rodzinski plays rhythmically yet with subtlety. Strong, clear recording excepting for the noisy "Sabre Dance" in which hall reverberation causes trouble.

**Interpretation AA**  
**Fidelity of Recording A**

**Franz Lehár Conducts.** Zurich Tonhalle Orchestra under the Composer. 6 sides, London Set 15. \$7.35. Sprightly, tuneful Lehár overtures to "Women of Vienna," "Merry Widow," "Gypsy Love." Definitive performance. In general, polished recording but the loudest passages of the "Merry Widow" are overcut, causing distortion in the form of rattle when using a GE VR pickup at 20 grams pressure.

**Interpretation AA**  
**Fidelity of Recording A**

**Ravel:** *Rapsodie Espagnole*. Boston Symphony Orchestra under Koussevitzky. 4 sides, RCA Victor Set 1200. \$3.50. The Bostonians' flair for this exotic suite is well known. The loud sections of side 4 lack clarity, but otherwise quite satisfactory domestic recording. Yet, the older competitor, Rodzinski's Columbia Set MX 234 holds its own for interpretation and fidelity.

**Interpretation AA**  
**Fidelity of Recording A**

**Ravel:** *La Valse* (3 sides) & **Debussy:** *Danse* (1 side). Pittsburgh Symphony Orchestra under Reiner. Columbia Set MX 296. \$3.50. Sumptuous, ironic waltz. Glorious performance. Cold, resonant chamber recording. Side one swishes. Overall, just tops Monteux's Victor Set.

**Interpretation AA**  
**Fidelity of Recording A**

**Respighi:** *Feste Romane*. Philadelphia Orchestra under Ormandy. 6 sides, Columbia Set 707. \$4.75. Bombastic suite of four tonal pictures centering on Roman festivals. The performers present the brilliance demanded and are well recorded with the exception of side 2 which has not the seductive tone of other sides.

**Interpretation AA**  
**Fidelity of Recording A**

**Saint-Saëns:** *Symphony No. 3*. Philharmonic-Symphony Orchestra of New York under Muench. 8 sides, Columbia Set 747. \$6. An elegant work, one of Saint-Saëns' finest. It is difficult to imagine a more satisfying interpretation. Recording has plenty of tonal vivacity.

**Interpretation AA**  
**Fidelity of Recording AA**

**Victor Young:** Artist Recording Orchestra under the Composer. 6 sides, Artist Set JY 11. \$7.30. Mr. Young composes background music for films. Most of the pieces in this album are as innocuous as that. Satisfactory though sharp recording, emphasizing high frequencies. Pressed on plastic.

**Interpretation AA**  
**Fidelity of Recording A**

## CHAMBER

**Debussy:** *Quartet in G Minor* (7 sides) & **Haydn:** *Quartet in D*—Fourth Movement only (1 side). Paganini Quartet. RCA Victor Set DM 1213. \$6. Persuasive performance and excellent recording, pressed on vinylite, of a popular, subtle

work. Overall, equals the Budapest performance in Columbia Set 467 and offers more realistic recording, the Budapest Quartet having been waxed at bigger-than-life volume.

**Interpretation AA**  
**Fidelity of Recording AA**

## VOCAL

**Bach Arias**—Vol. 1. Bach Aria Group under Scheide. 8 sides, Vox Set 367. \$6. Melodious, solo airs from six cantatas performed by young singers and instrumentalists who walk the path to topnotch artistry. Crisp, bright, full recording giving the impression of a hall, though on side 7 loud inner passages blast. Quiet surfaces.

**Interpretation A**  
**Fidelity of Recording AA**

**Brahms:** *Ein Deutsches Requiem*

RCA Victor Chorale and Symphony Orchestra and Soloists under Shaw. 18 sides, RCA Victor Set 1236. \$12.25.

**Interpretation A**  
**Fidelity of Recording AA**

Singverein der Gesellschaft der Musik Freunde in Wien with the Vienna Philharmonic Orchestra and Soloists under von Karajan. 20 sides, 2 volumes, Columbia Set 755. \$15.50.

**Interpretation AA**  
**Fidelity of Recording A**

One of Brahms' top choral works which many critics think is not worth repeated hearing. Shaw's performance is efficient but it lacks the sensitivity of his competitor. Though Shaw's recording offers greater clarity and range in choral and orchestral passages, this difference does not tip the scales in his favor. Overall, the Columbia is my choice.

**Nelson Eddy in Songs of Stephen Foster** (baritone). 8 sides, Columbia Set 745. \$6. Mr. Eddy's simple delivery and clear diction stand him in good stead but once in a while scoring and chorus suggest a "radio production."

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